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INFLAMMATORY CONDITIONS OF THE UPPER PORTION OF THE RESPIRATORY TRACT.¹

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In considering inflammatory conditions of the upper portion of the respiratory tract in the child one is faced with a long list of diseases which have their primary focus in this area, and the importance of such infections, apart from the systemic results, lies in the local effect. Before one enters on a discussion of these diseases it is well to take some note of the anatomy and development of the nasal cavities and naso-pharynx, and to consider some of the causes and effects of maldevelopment of these structures.

From the anatomical point of view the main consideration is probably the aggregation of lymphoid tissue about the naso-pharynx. This is disposed mainly in three masses: the two faucial tonsils, watching over the entrance of the food passage into the pharynx, and the pharyngeal tonsil or adenoid tissue, guarding the air entry from the posterior nares. In addition one finds the lingual tonsil, continuous with the faucial tonsil, and small scattered lymph nodes on the pharyngeal walls. The adenoid mass on the vault of the naso-pharynx is disposed in a series of ridges separated by grooves running parallel with the air current, the exposed surface thus being increased. The tonsil surface is also made larger by a number of crypts, one of which practically divides this organ into two parts. The lingual lymphoid tissue is very small in the young child and the scattered lymph nodes are minute.

The function of this tissue is protective, and by its regular disposition is manifestly of great impor-

¹Read at a meeting of the New South Wales Branch of the British Medical Association on October 26, 1939.

tance to the child. In addition to the arrest of invading organisms, these tissues probably set in train the development of immunity to such invaders. This production of immunity starts with the baby's first contact with its environment, and in the healthy child is practically unnoticed, as no severe general infections take place because the bodily defences are good. In the child with poor general health or poorly developed nasal cavities the process is marked by a series of more or less acute illnesses, which may be overcome without damage or may leave behind diseased adenoid and tonsillar tissue.

The nasal cavities of the infant are relatively smaller than those of the adult, the main reduction being in the vertical plane. The naso-pharynx is naturally relatively shallow and the vault and posterior wall form a continuous curve.

The accessory nasal sinuses are present early—the maxillary antra and ethmoid cells at birth, while the frontal and sphenoid sinuses appear about the third year.

With these facts in mind it is easy to appreciate how important any interference with the normal development becomes. The first essential is the natural feeding of the infant; the exercise called for in emptying the breast develops the muscles and ensures the correct pull on the bony structures. If one watches an infant sucking, one notes the wide grasp that is taken on the breast and the munching movement involved. This tends to widen the dental arch and so flatten the palate, thus helping in the deepening of the nasal cavity. On the other hand, the baby fed artificially by means of a bottle and teat loses much of this natural exercise and stimulus. The narrow teat tends to cause a pursing of the lips, while the pull of the muscles draws in the maxillary arch and the tongue thrusts the teat up against the palate. This all tends to narrow the palatal arch and so hinders the deepening of the nasal space. Thumb-sucking and the use of a "dummy" are also detrimental and have the same effect. When, in addition, the artificial food is not well balanced or a rachitic tendency is present, the maldevelopment is accentuated, as the causes will act more certainly and quickly on the softened bones and cartilages. The thrusting up of the palate may also bring about deviation of the septum.

The effect of the small and relatively shallow nasal cavity of the infant is to make obstruction from swelling of the mucous membrane easy, with damming up of secretion; mouth breathing is thus rendered inevitable. The naso-pharynx is also affected in the same way. Its shallowness permits the adenoid tissue, swollen by infection, partially to block the airway and thus favour mouth breathing.

There is no reason to suppose that the nasal sinuses in children are less susceptible to infection than in the adult. Their orifices are small and are easily closed by the turgid mucous membrane of the nose when they are infected.

It may seem that I have digressed somewhat from the subject of inflammatory conditions of the upper

portion of the respiratory tract; but I regard the anatomical structure of the area in the infant and, particularly, its acquired maldevelopment, as being the basis of much of the damage done by such infections.

Of these actual inflammatory conditions, the most troublesome in its remote effects is the common cold. Although its immediate results, both local and general, are relatively slight, it undoubtedly sets in train a series of damaging effects, and every effort should be made to keep the child free from such infections. So important is this that the infant should not be handled by others than its parents and nurse, and even these should take precautions against infecting the child. And here it may be noted that an unsuspected antral infection in an adult is often the cause of frequent "colds" in the children of the household.

In a cold, of course, the mucous membrane swells, the antral openings are blocked and the lymphoid tissue of the naso-pharynx becomes enlarged. All this may clear up; but the infection does not seem to produce any immunity, and another attack leaves a further deteriorated defence, until eventually the adenoid mass is chronically enlarged, the nasal mucous membrane is swollen, while the antral orifices are blocked and the antral mucosa is possibly infected. At this stage mouth breathing is almost certain to be present, with further detrimental effect. This can occur in a healthy child subjected to a series of infections, while in one with poorly formed nasal cavities the result is seen early. In this state the child lacks resistance to any airborne infection, and the damage is carried further by the measles, diphtheria *et cetera* which it so easily acquires. The more insidious conditions, such as rheumatic infections, nephritis or chronic bronchitis, find the lowered general resistance favourable to their onset.

What can we do, then, to hinder the development of the condition? In the normal child each cold must be treated as a possible forerunner of disease. Rest in bed for a day or so, with extra care until the nose is clear, is essential, followed by supervision of the diet and general environment, so that the resistance to infection may be raised. In the child with poorly developed nasal cavities it is almost certain that enlarged adenoid masses will be found, and these should be removed and an attempt should be made to reestablish nasal breathing. To ensure a free airway it may be necessary to treat the antra so that the chronic swelling of the nasal mucosa may be lessened. In addition, proper chewing habits must be taught, with hard food rather than the pappy stuffs so often found to form the chief diet of these children. This helps to develop the jaws and widen the palate.

It is advisable that a change to a drier climate should be made, during which time the shrinkage of the nasal mucous membrane will assist the efforts to reestablish proper breathing habits besides building up the general resistance.

In this picture of chronic infection it may seem that the tonsils play a subsidiary part; but it must be realized that with the mouth breathing come the exposure of these organs to much infection and their consequent hypertrophy. In the presence of lowered resistance and constant assaults they may become infected, the crypts being constantly inflamed and the drainage glands enlarged. The absorption from such chronically inflamed tonsils has a further detrimental effect on the general health. Should the tonsils merely be hypertrophied, without gross signs of infection, the clearing up of the nose and naso-pharynx may be followed by a return of the tonsils to normal. In the chronically infected state it is useless to leave them, and they must be removed, as they can no longer be of service to the body in their unhealthy condition, merely offering one more area of lowered resistance open to attack.

I have confined my attention to infections up to this point; but it is to be remembered that allergic reactions in the nose may set up a not dissimilar train of events, thus complicating the diagnosis and treatment. It is manifestly not much use removing adenoids and clearing up sinus infections if the nasal mucous membrane is still subject to allergic swelling, with consequent obstruction and mouth breathing, followed shortly by superadded infection, which cannot clear up satisfactorily owing to interference with drainage.

It remains, then, that we have in the so-called "cold" a potential danger which needs careful handling, and recurrences must be thoroughly investigated as to the ultimate causes. In this effort we are not always aided by the common parental attitude that we are making a fuss about a simple cold. It is none the less our job to protect the young patient and to see that the passing ailment does pass and not remain as a chronic infection.

In the more definite inflammatory conditions problems arise; but they are more often concerned with the systemic effects. Diphtheria, for example, is mainly difficult from its toxic results, although the laryngeal type is an exception. Some tonsillar damage may, however, be left. In scarlet fever, too, the tonsils bear the brunt of the fight and are often left in an unhealthy state, fit only to be discarded. Measles, with its attack on the nasal mucosa, is sometimes the forerunner of a chronic infection.

A condition which offers difficulty of recognition is infection of the naso-pharynx by a hæmolytic streptococcus. It may follow surf bathing, and is probably due to infected material entering the nostril.

The first of these patients, seen some years ago, was a child, aged eight years, who had a severe constitutional illness and no localizing signs except an enlarged gland in each side of the neck. The true condition revealed itself when the child gagged as the throat was being examined, and behind the posterior pillar a small tongue of membrane became visible. A culture yielded a pure growth of streptococci.

Several such cases have been seen since then. Similar infection of the larynx may simulate

laryngeal diphtheria and prove difficult of recognition. Nowadays the exhibition of one of the sulphonamide drugs will probably lessen our troubles.

The virus diseases, many of which use the naso-pharynx as a portal of entry, may be listed as inflammatory conditions of the area; but the local effects are negligible. Pink disease, which I feel must be of this group, is found on careful inquiry to follow a coryza. It is realized, of course, that the common cold is thought to be due to a virus; but it differs from the other virus diseases attacking the upper portion of the respiratory tract in that its main effect is local, while the others are systemic or attack other tracts (for example, anterior poliomyelitis, herpes *et cetera*). It seems not unlikely that an unhealthy condition of the nose and naso-pharynx favours the attack of such illnesses and is a further good reason for treating the chronic infection of the upper portion of the respiratory tract with vigour.

I realize that many conditions causing inflammatory effects in the upper part of the respiratory tract have been left out; but I feel that a mere listing of diseases was not the idea behind this discussion. It was rather to attempt some constructive criticism evoked by the frequency of chronic nasal infection in our midst—a reflexion, it has always seemed to me, on our preventive work among children.

Adequate protective foods should be available in this country; the climate permits ample exercise and fresh air, with unlimited sunlight, all of which should make such infections easy to control. Instead of this, they are responsible for a considerable number of the patients needing treatment in hospital.

The coastal position of the city, with its many low-lying areas, may be one cause, for I feel that the moist atmospheric condition may have an effect on the nasal mucous membrane. It is significant that such infections clear up easily outside the "north-easter" belt; and I would say that children from the low-lying area are more susceptible to respiratory disease, acute and chronic, which is ushered in by upper respiratory infections. I should be interested to hear the opinion of other paediatricians on these points.

I realize that any discussion on this subject eventually arrives at the question of removal of tonsils and adenoids. The adenoid condition can be fairly easily disposed of by the statement that once the adenoids are found to be enlarged in a child with frequent colds or middle-ear disease, they should be removed, no matter what age the child is. The tonsil question offers a wider field for discussion. My own attitude is that the tonsils should be saved until the child is five years of age—a somewhat arbitrary age, maybe, but based on the belief that tonsils, unless grossly diseased, assist the child in its fight for immunity, and that by the age of five years the child has enlarged its environment and met most of its attackers. The reasons for

removal of tonsils before this age are the following: obvious gross infection, enlargement of the lymphatic glands not returning to normal after removal of the adenoids and possible sinus infection, a series of attacks of acute tonsillitis with anaemia and poor general health, and, lastly, the occurrence of such diseases as nephritis, carditis or chronic bronchitis when they are preceded by tonsillar infection.

It is interesting to note that in some cases after early removal of the tonsils "sore throats" are complained of, and to find that the lingual tonsil and the small scattered lymph nodes of the pharyngeal wall have become enlarged, apparently taking up the preventive work of the tonsil. The small lymph nodes appear as rounded little areas on the posterior pharyngeal wall, which increase and subside as the infection waxes and wanes.

Having dwelt somewhat on the relation of the dental arch and palate to the nasal cavity, I may add that some children have narrow nostrils which do not widen satisfactorily after removal of adenoids and clearing up of sinuses, and mouth breathing persists. Orthodontia, aimed at widening of the dental arch and so at improvement of the bite, may, if undertaken reasonably early, improve the nasal condition and so remove the disappointment that is sometimes felt at the lack of response to the complete nasal toilet.

Treatment, apart from suggestions as to general improvement in health and prophylaxis, has been left to my surgical colleague, as it falls mainly in his province. The use of nasal drops, inhalation *et cetera* is mainly palliative, and each man has his own favourite prescriptions. The new use of diathermy for sinus infection is promising from reports; but I have had no experience of it.

INFLAMMATORY DISEASES OF THE UPPER PORTION OF THE RESPIRATORY TRACT.¹

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IN dealing with a subject of so comprehensive a nature, I am aware that one must visualize at the same time the great number of general diseases and complications involved, with all of which none but a leviathan of omniscience could deal.

The elementary consideration of time, however, will justify my dealing with only a few of the inflammatory diseases, and those of a chronic or subacute nature.

Nasal obstruction is a primary *ætiological* factor in many inflammatory diseases of the nose and sinuses. It is obvious that a large percentage

of patients attending ear, nose and throat clinics are of the prominent aquiline nose type, the nose being laterally compressed, the premaxilla prominent and the hard palate highly arched. The architectural bony design of such noses spells obstruction to the nasal airway, such obstruction being usually accentuated by a disuse atrophy and collapse of the *alæ nasi*. The ensemble, with its crowded middle turbinates, inefficient drainage of the sinuses and poor ventilation, accounts for many sufferers from chronic sinusitis.

The question arises, whether the white Australian is already developing a typical physiognomy, with alteration of the cranio-facial angle, a more prominent nose of architecturally narrow designs, and with it an increase of nasal disorders to which our forebears were less prone.

The diagrams from Seward's recent paper illustrate the influence of badly occluding teeth on bone development, and Scantlebury remarks that orthodontia does help in broadening the hard palate and so in producing larger antra and nasal fossæ.

Mention should also be made of the possible influence of subtropical environment on the seaboard; of the fact that, endowed as we are with facilities for swimming, a large percentage of our people has reverted to the amphibian type; and of the fact that many city dwellers the world over are devoid of "*Lebensraum*", and, even if they had it, their economic state is such that their resistance to disease associated with rhinitis would still be low.

The influence of nutrition on nasal sinus disease is regarded by some as of importance, and although dogmatic views have been expressed, there is ample scope for discussion on the subject.

It is believed that the nasal sinuses stand first among the infective foci responsible for serious complicating diseases.

With the exception of sinusitis of dental origin, the view is held that the commonest causes of chronic nasal sinusitis are the repeated head cold, influenza and the exanthemata.

Chronicity is liable to ensue in children because the small nose is frequently blocked by turgesence, with resultant lack of ventilation and sinus drainage.

It is a *sine qua non* that the mucosa of the sinuses is inflamed as an accompaniment of a congestive rhinitis. By virtue of its continuity, such mucosal swelling of the sinuses gradually recedes as the nasal mucosa subsides; this is demonstrated in skiagrams of the antra of identical twins, one being used as a normal control.¹ The same swelling and recession of the antral mucosa can be demonstrated in allergic rhinitis. Recurrent attacks of allergic rhinitis or chronic allergic rhinitis predispose to secondary infection of the sinuses.

Whereas, in children, it is believed that the antra are the sinuses most commonly infected, the possible infection of other sinuses must also be suspected, though their cavities are smaller.

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on October 26, 1939.

¹ Dr. Halloran showed the skiagrams on the screen.

Development.

The antrum is clearly seen in the newborn and by the third year is a fair-sized cavity. The ethmoid sinus contains well-defined cells at birth. The sphenoid sinus is a definite cavity by the third year, and the frontal sinuses are good-sized cavities at the age of about seven years.

It is in the antra, as distinguished from the other sinuses of children, that disease can be readily demonstrated, because of their accessibility. Attention has been directed to this disease in children and to its association with bronchiectasis during the last two decades. The frequency of sinusitis in children is evidenced by the figures of Crooks, who in a series of 100 children at Great Ormond Street Hospital found that 24 had mucopus in the antra. Other workers produced figures ranging from 22% to 30%.

This is undoubtedly the age at which the seeds of chronic sinusitis are sown, the age at which infections of the lower part of the respiratory tract develop, and the age at which the "sinus-minded" physician can, by early recognition, cut short an insidious bronchiectasis.

A descending infection follows sinusitis by spreading along the mucosal surfaces to the tracheo-bronchial system; but extension along the lymphatics and blood stream also occurs. In the symptomatology, the chief points noted are the nasal obstruction and secretion; the tendency to sniff backwards, the cough, which may be due to post-nasal discharge and its reflex irritation, recurrent and prolonged head-colds; headaches; mental hebetude; and a change in temperament with irritability. *Otitis media* is a common complication. Tonsillitis is frequently associated also. The characteristic "slushy cough" of bronchiectasis, when heard in older children and adults, should at once direct attention to the antra. Rheumatism is seldom associated with sinusitis.

Diagnosis.

Transillumination is not to be relied upon in children. Diagnostic proof puncture, if without result, is to be ignored; but if a positive result is obtained it may afford useful evidence of the type of infection. It is preferable to use X ray evidence in conjunction with the foregoing measures. Skiagraphy of the accessory sinuses of the skull has advanced so rapidly that nowadays the antral mucosa can be defined accurately.

The interpretation of certain skiagrams requires considerable skill, and in many cases a "negative" report may be fallacious. On the other hand, indefinite reports must sometimes be given. But, however one evaluates the report of a skiagram, diagnostic proof puncture should be proceeded with. "Puncture-aspiration-culture" may be useful.

Complications.

Orbital cellulitis occurs rarely and is usually secondary to ethmoiditis. The orbital edema associated therewith is unlikely to be associated

with the swelling of acute diffuse osteomyelitis of the superior maxilla. Orbital cellulitis subsides after evacuation of the pus by an external incision over the *lamina papyracea*; but osteomyelitis of the superior maxilla is usually fatal. Diffuse osteomyelitis of the frontal bone is a rare complication.

Treatment.

Ventilation of the nose, leading to improved drainage, is essential. In children it is rarely necessary to remove nasal polypi or resect the septum; but shrinkage of the turbinal mucosa must be accomplished.

Children object strongly to menthol, and its use in any form should be avoided in the nose. It is to be regretted that it is still incorporated so frequently in nasal remedies, but traditions die hard. An astringent in a watery base is preferable to an oily base, the latter acting as a "tanglefoot" to the cilia, whose motion should be encouraged and not hindered. "Neosynephrin" is preferable to ephedrine. Short-wave diathermy is stated to be useful in chronic catarrhal sinusitis without retention. Change to a high and dry climate greatly improves the mucosa.

However, there remains a residue of patients with chronic sinusitis for whom operation is indicated—nay, is imperative; particularly those in whom early bronchiectasis is evident. And the type and extent of the operation have, for many years, been a fruitful source of argument among rhinologists.

In adults and adolescents, the Caldwell-Luc operation, with complete removal of the pyogenic antral mucosa, gives excellent results. For many years I have gone further, attacking the ethmoid sinuses via the antral cavity. Suppuration then ceases, and it has been proved by several observers that ciliated columnar epithelium and glands regenerate in the human antrum after a radical operation.

In children, however, there is the added factor of undescended teeth, and such radical operations are contraindicated. Intranasal antrostomy, which provides drainage and facilitates lavage, is a useful substitute. Unfortunately the pyogenic mucosa is not removed by the intranasal operation, and an intact inferior turbinate may hinder drainage or lavage and the opening may tend to close; but, on the other hand, the mucosa of a child has not been infected for so long and has great recuperative power.

This operation on children and adults is not always satisfactory, and rarely may have to be followed by a more radical procedure later. It has much to commend it, however.

James Crooks found that:

In a series of 100 children with chronic sinusitis at Great Ormond Street,

52 were completely cured—that is, they were free from symptoms and final radiographs showed normal sinuses,

32 were improved,

16 remained unchanged.

It is quite usual for the tonsils and adenoids to be infected as an accompaniment of chronic sinusitis, and in the same series of 100 children with chronic sinusitis, Crooks found that 41 had already had their tonsils and adenoids removed completely. Tonsils and adenoids were later removed from another 24 of the 100 and, of these, 15 still had mucopus in the antra six months later. Crooks therefore concluded that disease of the tonsils and adenoids was not a common cause of sinusitis and that their removal was neither a preventive nor a cure of the condition.

Whatever the relationship, however, it is necessary to recognize that frequently sinuses and tonsils and adenoids are co-infected. Moreover, eradication of either infection does not cure the other.

Whatever cynical references may have been made to tonsillectomy, they are counterbalanced by the late Dan McKenzie's comment on "the transformation of the race through the influence of this simple operation". Its beneficial influence on *otitis media* is generally acknowledged.

Kaiser, however, showed statistically that prophylactic tonsillectomy did not make for great immunity to recurrent infections of the respiratory tract, to acute contagious diseases or to rheumatism.

Brandford Morgan, after investigating a large series of cases, reached the conclusion that "tonsillectomy may possibly render one less liable to arthritis and therefore, possibly, to carditis, but certainly not to chorea".

Reginald Miller, in discussing the association between acute rheumatism and hæmolytic throat infections, notes that "in tonsillectomized children, uncomplicated chorea is a very frequent form of their rheumatic attacks".

Tonsillectomy, then, does not reduce the liability to acute rheumatism, but would appear to lessen its severity.

Pickworth's erudite paper on the pathology of the nasal sinuses and its relation to mental disorder, in 1932, attracted much attention. Prior thereto Watson-Williams and others had dwelt on the subject.

In 1936, however, Jollett wrote: "A series of 500 routine cases of mental disease has been examined. Nasal sinus infection has been proved in 7.6 per cent." Later workers have found a lower incidence of sinus diseases in mental hospitals than was at first thought. Jollett considers that "before conclusions can be drawn from *post mortem* pathological material collected in mental hospitals, the great incidence of sinus infection at some period of life in all individuals must be considered. Further, the effect which the disease causing death might have upon the condition of the accessory sinuses must be carefully considered."

Apparently, then, the degree of relationship between nasal sinuses and mental disorder is still *sub judice*.

In the hope of provoking discussion among the bacteriologists present, I touch warily on the sub-

ject of the streptococcus as isolated from throat cultures.

Professor H. K. Ward has made the following statement:

Save for infective endocarditis and certain infections by anaerobic streptococci which occurred under special conditions, there was no good evidence that disease could be caused by any but the hæmolytic streptococci.

It had been shown that the normal habitat of virulent hæmolytic streptococci was the human throat and that it was droplet infection that had particularly to be guarded against.

The dangerous people were those carrying hæmolytic streptococci in their throats . . . very young infants were very susceptible to streptococcal bronchopneumonia.

Papers have already been read by Dr. John Chesterman and Dr. Beatrix Durie on the relationship of the hæmolytic streptococci to puerperal infections, and their work is still proceeding. They have demonstrated the extent to which persons with such positive throat cultures are a danger to parturient women and to infants.

In analysing the results obtained from throat swabbings, Dr. Durie makes it evident that the dangerous carriers are those who have had recent acute sore throats or sinus infection. She remarks: "It is often a very long time before the throat swabbing becomes free from infective organisms."

That throat swabbings do cease to contain hæmolytic streptococci after tonsillectomy is shown by the accompanying list of nurses (Table I), who were subjected to tonsillectomy because of repeated positive cultures.

The Effect of Tonsillectomy on Nine Nurses who previously Harboured Hæmolytic Streptococci in their Throats.

Patient.	Date of Tonsillectomy.	Date of Next Throat Swabbing.	Result.
S.C.	15/ 8/39	3/10/39	Streptococci of different type.
N.B.	15/ 8/39	19/9/39	No streptococci.
N.K.	11/ 7/39	18/8/39	No streptococci.
N.H.	30/ 7/39	23/8/39	No streptococci.
N.E.	14/12/39	—	No report. ¹
N.W.	27/10/38	—	No report. ¹
N.L.	27/10/38	December, 1938.	No streptococci.
N.M.	28/ 7/38	September, 1938.	No streptococci.
N.Y.	10/12/37	March, 1938. ²	No streptococci.

¹ Left hospital.

² Absent until this date.

Should the contrary be the case, then additional foci—for example, the paranasal sinuses—must be sought for and appropriate treatment must be adopted.

But what is the action of the sulphonamide compounds on chronically infected throats yielding a culture of hæmolytic streptococci? Much appears in the literature of the effect of chemotherapy on similar acute affections, but little is written of its effect on chronic tonsillitis. The general opinion is that adequate dosage cuts short the acute stage of the affection and hastens the disappearance of the streptococci from the throat. Dr. A. Smith has made the following statement:

Relapses occurred at periods ranging from two to four weeks after complete recovery from the primary attack. The streptococci in many instances could be isolated two,

three, four weeks after the complete recovery of patients who, apparently, remained infective, for contacts developed the disease.

Bannerman noted that:

In hæmolytic streptococcal carriers, the organisms disappeared as a result of sulphanilamide treatment, but reappeared from one to six days after the drug was stopped. Latent and chronic streptococcal infections of the tonsil are unaffected by sulphanilamide.

I am inclined to the latter view, in which case tonsillectomy would still remain the treatment for carriers of hæmolytic streptococci.

Conclusion.

But what are your views of the future? Though the writing may not yet be on the wall, chemotherapy is advancing rapidly. It is for you to visualize its future and the degree to which surgery may yet bow the knee to one of the most extraordinary advances of the age.

Acknowledgements.

I desire to express to my colleagues, Dr. K. E. Shellshear and Dr. Kerrod Voss, my thanks for their assistance with the skiagrams concerned in this paper.

NOTES ON AMERICAN UROLOGY.

By KEITH KIRKLAND, F.R.C.S. (Edinburgh),
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Sydney.

I WAS privileged to spend some months in the United States of America recently, studying urology and urological methods, and I feel that my impressions may be helpful to other people interested in the specialty.

Urology has been a clearly defined part of surgery for many years, and, largely owing to the work of Young, Keyes, Lewis, Braasch and others, the need for special and detailed post-graduate study has been accepted; consequently the status of the specialty has been enhanced of recent years. The American Board of Urology demands six years of post-graduate work before candidates are accepted for examination. The first year is a general one, the next three years are devoted exclusively to urology in an approved clinic, and then two years are spent in urological practice. Obviously many people practise urology who have not had this training; but that is the standard laid down by the board.

The Section of Urology of the American Medical Association met at St. Louis on May 17, 18 and 19, 1939. W. P. Herbst, as chairman, dealt in a most comprehensive manner with the problems of renal tuberculosis. He stressed the fact that urological intervention was only one incident in the disease and that a full medical assessment should be made in every case and facilities provided, if necessary by the State, for the long period of after-treatment which was so often essential. His subject matter was not new; but it does appear advantageous to

stress again and again that tuberculosis in any shape or form is a community problem and must be approached by a team of experts, of whom the public health officer probably plays the most important part.

C. C. Higgins, of Cleveland, who had done most important work in the problem of stone formation, emphasized the fact that meticulous attention to detail must be a feature of treatment. In cases in which stones have been removed, the post-operative supervision and follow-up must be as absolute as in malignant disease. Throughout the United States of America it would appear that Jean's biophotometer test is generally used to determine vitamin A deficiency.

It is significant that the Cleveland clinic would appear to have had better results in the prevention of the recurrence of stones than any other in the United States of America, and I would attribute that success largely to the scientific enthusiasm of Higgins.

Rubin Flocks, of Iowa city, reported his work on the urinary concentration of calcium and phosphorus in stone formers. He found that two-thirds of his patients with stone had an obvious increase in the concentration of urinary calcium and phosphorus, whilst one-third had a low excretion. Obviously, as an acid ash diet and a diet rich in vitamin A and possibly vitamin D lead to an increased urinary excretion of calcium, a high figure should not be made higher. Flocks made the following statement:

The results of these studies emphasize the necessity of studying *quantitatively* the calcium excretion in the urine under different types of therapy instituted. They show that where increased urinary calcium is found the prognosis is poor, and acid ash diets and vitamin D should be used with care. Marked dilution of the urine should be sought for and all possible sources of this high urinary calcium searched for and eliminated. In contrast in patients with low urinary calcium the prognosis is better and beneficial effects may be expected from acid ash diets. Moreover, in considering the problem of recurrence of stone in a particular kidney the possibility of altered urinary calcium excretion through that particular kidney is of importance.

The American Association of Genito-Urinary Surgeons held the annual meeting at Williamsburg, Virginia. Many outstanding papers were presented, and one that created much interest was an analysis of a series of cases of benign prostatic enlargement in which male sex hormone (testosterone) had been used. Heckel, of Chicago, who presented the paper, came to the conclusion that no effect on the prostate had resulted and that that form of approach to the problem was quite illogical.

Deming, of New Haven, who appears to have done the greatest amount of work on the aetiology of prostatism, has come to the same conclusion. He has shown that the early change is primarily a multiplication of fibro-muscular elements and resembles the pathological condition found in uterine fibromyomata, and further, that benign prostatic enlargements are not hypertrophies, but are true hyperplasias derived from muscle, fibrous tissue and ducts.

The American Urological Association, which has 1,100 members, held its annual meeting at White Sulphur Springs, West Virginia. I feel sure that comment on some of the papers will prove of interest.

Howard, in discussing nephrectomy in tuberculous disease, suggested removal of the kidney and marsupialization of the stump of the ureter to the skin. He inserts a small tube into the ureter and injects daily a sclerosing solution, such as alcohol, during the patient's convalescence, to produce degeneration of the ureteral mucosa. He holds that ureterectomy is then generally unnecessary.

Gibson demonstrated a kidney stone evacuator somewhat on the lines of the well-known Bigelow evacuator, to flush the pelvis and calyces and suck out sand.

Wagenen and Jenkins, in an experimental examination of the factors causing ureteral dilatation of pregnancy, showed that in the macaque monkey dilatation persisted after the removal of the foetus, as long as the hormone relations in pregnancy had been preserved by the leaving of the placenta *in situ*.

Adams and Nesbit respectively described their technique of intramuscular and subcutaneous administration of "Diodrast" to small children in excretion urography. Both techniques appear to be safe and the advantages are obvious.

Mulholland, in a paper entitled "Hypertension's Challenge to the Urologist", dealt in detail with the association of hypertension and chronic unilateral renal infection. Nephrectomy has undoubtedly proved of benefit in many of these cases, and many such examples were reported by speakers. It would appear, however, that many cases of hypertension occur associated with, and not caused by, chronic renal infection, and the indications for nephrectomy in hyperpietic cases are not yet fully understood. Fish, of New York, in a paper not yet published, has shown that in a series of twenty-one cases of unilateral chronic pyelonephritis very little benefit resulted from nephrectomy.

The ever-present problem of malignant growths of the bladder was discussed, but nothing new emerged. One urologist stated that deep X ray therapy in carcinoma of the bladder did two things: first, it reduced the widow's mortgage money, and secondly it deprived the children of a first-class education.

Sulphanilamide therapy is still in a state of change. However, preparations in addition to those already available are being tested, and it would appear that the benefits already conferred by this form of treatment will be largely increased in the near future.

The treatment of prostatism and bladder neck obstruction generally is still a very much discussed problem in the United States of America. Thompson, at the Mayo Clinic, treats virtually every patient by cold punch resection. His mortality figures are very low; but I gained the impression that the morbidity is higher than is generally appreciated. Chronic infection, hæmorrhage and urethral stric-

tures are complications. His statement that incontinence of urine occurs more commonly after perineal and suprapubic prostatectomy than after transurethral resection by his method is not impressive. I have yet to see a case of incontinence following the suprapubic operation.

The vast majority of the "resectionists" in the United States of America use the higher frequency cutting current with either the McCarthy or Nesbit operating unit. I was more impressed by this form of approach to the problem.

In at least the good clinics the indications for resection are quite definite and very much the same as the indications for prostatectomy. Minor alterations in physiology, such as a slight diminution of the urinary stream, do not, to my mind, justify the presumption that a pathological condition demands operative interference.

Perineal prostatectomy is the operation of choice in Young's clinic at Baltimore, and his influence is seen throughout the United States of America, in that many of his pupils favour this method of removal. The results are, generally speaking, very good; but in the hands of most surgeons incontinence of urine still occurs frequently enough to be a great nuisance.

Deming adopts a perineal approach in all cases of possible malignant disease, and after biopsy, if examination of the frozen specimen reveals carcinoma, he proceeds to a radical prostatectomy. The suprapubic prostatectomy is not performed nearly so well as in Sydney, and the influence of Thomson-Walker and Harris appears to be very small in the United States of America.

As a result of my observations I am of the opinion that each type of approach to bladder neck obstruction has justified its place in urology. Median bars, fibrous prostates and carcinomatous prostates seem best treated by transurethral methods. Large adenomatous prostates appear to be most satisfactorily and completely removed by suprapubic operation. When malignant disease is in question, the perineal approach, biopsy examination and, if necessary and possible, radical removal, must give a proportion of patients a chance of complete cure.

To these general indications must, of course, be added others, and, not the least important, the training in and predilection for a particular type of operation on the part of the individual surgeon.

Conservative renal surgery appears to be practised more widely in the United States of America than in Australia. I saw multiple renal stones removed, sometimes with the aid of an X ray film to locate small fragments, whereas in the presence of a corresponding condition here I believe that the kidney would have been removed. The same applies to many cases of hydronephrosis, in which the plastic operations are more generally attempted.

Bilateral ureteral transplantation to the bowel is carried out as a routine measure in advanced interstitial cystitis, and when complete cystectomy is possible in malignant disease.

Cahill, of New York, uses air injection of the perirenal space in the diagnosis of suprarenal

tumours. That, however, is not a generally used technique by any means.

Since the work of Newberg, Collier and Maddock, of Ann Arbor, the importance of fluid balance in surgical procedures is accepted, and intravenous therapy appears to occupy a much more important place in American than in Australian surgery.

In the matter of hospitals the community principle that all financial classes of patients are under the one roof, are operated upon in the one set of theatres, and have available all therapeutic facilities, would appear to be an advantage over our system, in which the facilities provided for charity patients are infinitely superior to those provided for richer patients. It would be an advantage, too, in our private hospitals, for the common surgical necessities to be owned by the hospital and available for every surgeon's use in the hospital. By that I mean that no surgeon should have to take scalpels, needles, artery forceps, retractors, sutures and so on to and from any of the private hospitals at which he works. It is an absurd position when one realizes that hundreds of sets of everyday instruments are owned by surgeons in this city, and in many cases are only occasionally used.

In conclusion I would pay a tribute to our American colleagues in urology. Their courtesy, enthusiasm and honesty were not only most inspiring, but combined to make my surgical pilgrimage both pleasant and profitable.

Reports of Cases.

RECURRENT ADENOMATA OF THE THYROID.

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CONSIDERATION of the problem of recurrent adenomata of the thyroid gland was crystallized by the admission of four patients with this type of lesion to the beds of the surgical unit of the Prince Henry Hospital during August, 1939; one of them (Case I) had one of the most extraordinary conditions we have ever encountered.

These patients represent different phases in the problem of adenomata with and without thyrotoxic symptoms following previous partial thyroidectomy for adenomatous conditions of the thyroid gland. It was thought that the essential features of each case, with pathological reports and a discussion of the salient features of the condition, might be of interest to those who are worried by similar cases and who are concerned with the aetiology and correct surgical treatment of either non-toxic or toxic adenomatous goitre.

The cases under discussion are all of true recurrent adenomata, three of them being associated with thyrotoxicosis. In each of them a varying period of relief from symptoms and signs followed one or more operations, and then, apparently without rhyme or reason, the old troubles,

now well known to the patient, reappeared. The goitre "came again".

That recurrence must be of relatively frequent incidence is indicated by the number of such patients one sees coming to an established goitre clinic. The surgeon whose patients do not suffer recurrence after partial ablation of the gland will not only have such patients referred to him, but will be sought out by patients suffering a recurrence which a less carefully planned operation in other hands has failed to cure.

By courtesy of the Royal Prince Alfred Hospital the old case records of these patients have been made available for study, as well as sections of the tissue removed at the previous operations, and these have been compared with the histopathological picture of the tumour removed after recurrence in August, 1939, at the Prince Henry Hospital.

Case I.

The patient, L.F., a young woman, aged twenty years (see Figures I and II), was admitted to the Prince Henry



FIGURE I.

Showing patient aged twenty years. Lateral view.
(Case I.)

Hospital on August 2, 1939. The first eighteen years of her life had been spent at Queanbeyan. At the age of eleven years she had first come under medical observation for



FIGURE II.

Showing patient aged twenty years.
Anterior view. (Case I.)

a swelling in her neck which her parents declared had been there all her life (see Figure III). Between the ages of ten and eleven years the tumour had doubled in size, and various symptoms had made their appearance: giddy turns,

attacks of breathlessness, precordial pains and tingling in the extremities.

Between the ages of eleven and thirteen years she was treated medically for the goitre, which responded by increasing in size. In December, 1932, when she again sought medical advice, a swelling was seen projecting forward 2.5 centimetres from the anterior aspect of the neck and extending 7.5 centimetres transversely across the neck below the thyroid cartilage. It was semi-solid on palpation and four discrete nodules were felt projecting from the tumour mass.



FIGURE III.
Showing patient aged eleven years. (Case I.)

First Operation.

Partial thyroidectomy was first carried out on January 4, 1933, four adenomata being shelled out of the thyroid tissue and the raw areas oversewn; 33 grammes of thyroid tissue were removed on this occasion. Examination of a microscopic section revealed that the most opaque of the four tumours had the structure of a foetal adenoma. Many small alveoli contained masses of dark-staining colloid surrounded by cubical epithelial cells. In the smallest adenoma there was abundant colloid, but this was found only in one very large alveolus; into this there projected many papillary ingrowths.

Second Operation.

During 1933 the cervical tumour had become greatly enlarged again. Subtotal left lobectomy was carried out on January 10, 1934, when a vascular lobe showing necrotic areas was removed; 60 grammes of thyroid tissue were removed on this occasion. The pathological report on a microscopic section was that it showed hyperplasia of a very unusual type. In some areas the epithelial cells were tall and columnar and the alveoli were of the lacunar type. Here there was no colloid. The cytoplasm was faintly granular and ill-defined. In adjacent areas the hyperplasia was associated with the formation of many solid masses of cells and with considerable heteromorphism and hyperchromatism.

Third Operation.

During 1934 the remnants of the gland grew to produce a large goitre consisting of numerous nodules. At operation on January 23, 1935, the capsule of the gland was opened in three places and adenomatous masses were enucleated; 21 grammes of thyroid tissue were removed. The pathologist reported that the tumour contained many large colloid alveoli. Many of these contained blood and desquamated cells full of pigment. Many alveoli, though very large, were almost empty of colloid, but others contained colloid which was very granular.

Fourth Operation.

The patient was admitted to the Prince Henry Hospital on August 2, 1939. Her complaint was of a gradual increase

in the size of the thyroid gland, which now projected out beyond her chin. Palpitation and "gasps" at night had also recently been troublesome. On August 4, 1939, her basal metabolic rate estimated by the Searborn machine was -17%, her weight was 101 pounds, and her pulse rate was 78 per minute. The enormous thyroid swelling was soft and fluctuant except for three areas of firmer consistency, each about one inch in diameter.

On August 8, 1939, total thyroidectomy was performed under "Avertin", cyclopropane, nitrous oxide and oxygen anaesthesia. The old scar and redundant skin were excised and all cervical structures were found to be greatly distorted and displaced; 330 grammes of thyroid tissue, consisting mainly of three large adenomata, were removed. The patient made an uneventful recovery, being discharged on August 30, 1939, and was ordered one grain of thyroid substance twice a day. The pathological report on a microscopic section was as follows: the adenomata in various areas showed variation in structure. In some the epithelial cells had a sinusoidal arrangement, other sections showed somewhat necrotic masses of cells and other areas again showed more active epithelium. Though histologically the appearance of the tumour was not that of a carcinoma, the clinical history was such as to suggest a greater degree of activity of the gland epithelium than was indicated by the histological appearance.

Comment.

Important points which will receive mention in the discussion are the following:

1. Altogether some 33 grammes + 60 grammes + 21 grammes + 330 grammes (444 grammes) of thyroid tissue have been removed from the patient during the last six years; the normal thyroid gland weighs about 25 grammes.
2. In the first three operations the adenomatous masses were "shelled out"; the fourth and final operation was a total thyroidectomy.
3. The histological appearance of the gland was unusual, particularly the "papillary ingrowths".
4. The patient was very young, having been subjected to her fourth operation at the age of twenty years.

Case II.

The patient, I.H., a woman, aged thirty-two years, was admitted to the Prince Henry Hospital on July 30, 1939. She stated that during 1928 she had gradually suffered from a swelling in the neck, accompanied by palpitation and fainting attacks, tiredness, frontal headaches and nerve storms.

First Operation.

Partial thyroidectomy was carried out in 1930. Relief for three months was followed by the reappearance of symptoms with dry vomiting. On May 26, 1931, she was admitted to the Royal Prince Alfred Hospital in a dyspnoic condition. At that time she had no visible enlargement in the region of the thyroid gland, and palpation of the neck was difficult on account of the old scar and surrounding fibrosis. She had a fine tremor of the hands. No exophthalmos was seen. Her basal metabolic rate was +35%.

Second Operation.

Partial thyroidectomy was performed on June 11, 1931. No thyroid tissue was found on the right side. The left lobe was greatly enlarged; 29 grammes of thyroid tissue were removed from the left lobe. A small portion of the lower lobe (judged to be one-sixth to one-quarter of the whole lobe) was left. The convalescence was stormy; tachycardia and acute confusional insanity developed, accompanied by gruesome hallucinations. The patient was eventually sent to the Reception House for restraint.

Pathological examination of a section revealed that the alveoli in the adenomata were closely packed together, so that the characteristic adenomatous stroma was seen only in a few areas. A few empty alveoli with hyperplastic cells were found.

From 1931 to 1937 the patient remained in tolerably good health. Palpitation then reappeared, along with headaches and occasional giddy and fainting turns. She lost one stone in weight during the month prior to her admission to Prince Henry Hospital on July 30, 1939. Her basal metabolic rate, estimated on several occasions during the month of August, fell only from +37% to +31%. She gained three pounds in weight and her pulse rate was stable at about 100 beats per minute. Iodine and sedative therapy effected no remission in the patient's condition.

Third Operation.

As four weeks' treatment had produced but little effect it was decided to proceed with operation on August 29, 1939. It was found that there had been no regeneration of tissue on the right side; but from the left side some 180 grammes of thyroid tissue were removed, consisting of multiple adenomata. Portion of this mass occupied the left thyroid bed, but had become enlarged, causing the trachea to deviate to the right. Just before the wound was closed a mass of tissue of doubtful origin was noticed arising from the left thoracic inlet. After incision of the covering fascia a very large adenoma was enucleated from the superior mediastinum. Regeneration may have taken place from the portion of the lower pole left in 1931 and this had plunged down into the thorax or, more likely, an intrathoracic adenoma had been overlooked. This massive adenomatosis was responsible for the patient's pronounced toxæmia, which did not respond to the usual preoperative measures. Hæmostasis was secured and the patient returned to the ward in fair condition and caused no worry through the night. At 6 a.m. next day a sudden crisis developed, unlike the characteristic thyroid crisis; she turned an ashen colour, her pulse rate rose about ten beats per minute every hour, and her blood pressure fell with the rising pulse rate. In spite of the administration of "Digoxin", ephedrine and oxygen, and the intravenous use of saline solution and Lugol's solution, the patient died nineteen hours after operation.

A pathological examination of a microscopic section revealed that the mediastinal tissue showed hyperplastic thyroid tissue; the adenomatous tissue present showed the foetal type of acini. In other sections a foetal type of adenoma was seen, in some of which degenerative changes were conspicuous. The small portion of tissue close to the trachea histologically resembled a colloid type of gland, in which were present acini of various sizes, full of colloid and lined by a flattened epithelium.

In a previous report it was pointed out that these patients were very bad surgical risks—a fear that was brought home by the fatal issue in this case. At autopsy the wound area showed no evidence of any oozing of blood. The cavity from which the retrosternal mass was enucleated extended down to the upper and anterior aspect of the arch of the aorta. Possibly interference with the nervous pathways going to the superficial cardiac plexus involved in the removal of this mass was a factor in this patient's death nineteen hours after operation.

Comment.

The following points should be noted: (i) the regeneration of adenomatous tissue from the remnant of gland left at the second operation, (ii) the fact that the second operation was followed by confusional insanity, and (iii) a fatal issue supervening on the third operation.

Case III.

Mrs. M.H., aged thirty-three years, was admitted to the Prince Henry Hospital on July 10, 1939. A goitrous enlargement had first made its appearance in her neck during 1917. She came under medical observation in 1927, following rapid enlargement of the thyroid gland. At that time she had no exophthalmos or loss of weight, but complained of palpitation and nervousness.

First Operation.

The whole of the right lobe was removed in February, 1927. It measured 8.5 by 5.0 by 5.0 centimetres, and

numerous cystic lobules were found projecting from the general surface of the gland mass. No mention was made of the condition of the left lobe. Examination of a microscopic section revealed that the epithelial cells were high cubical in type and had large vesicular nuclei. The hyperplasia was striking and was both simple and papillomatous. The vessels were not thin-walled, nor was the stroma of the adenomata of foetal type; yet it resembled closely the papillary adenomata forming encapsuled tumours.

The patient's condition improved for seven years after partial thyroidectomy; then shortness of breath, palpitation, flatulence and nervousness developed. All the symptoms, she stated, were aggravated by, if not initiated by, the death of her husband in 1934.

On examination she was tremulous and had a general enlargement of the whole of the right lobe of her thyroid gland, in which two solid nodules were palpable. Her basal metabolic rate fluctuated about +20%, and her pulse rate was about 100 beats per minute.

Second Operation.

Operation was performed on August 15, 1939, when the left lobe of the gland was found to be greatly enlarged and tracking down into the mediastinum. The lower pole was eased up from the thorax by means of a spoon, large vessels in the thyrothymic leash causing some difficulty in securing hæmostasis; 146 grammes of thyroid tissue were removed—the whole of the adenomatous left lobe. The right side was explored and only a small fragment of tissue was found there; it was left undisturbed. The patient made an uneventful recovery and was discharged, cured, on September 3, 1939. Examination of a microscopic section revealed that the adenoma was composed largely of solid masses of epithelial cells; but in some areas acinar formation was conspicuous. The acini varied from well-formed vesicles to very immature types. The general picture suggested an extremely hyperplastic epithelium, but it did not appear that the growth had undergone neoplastic changes.

Comment.

Points to be noted are the following: (i) extreme hypertrophy (possibly compensatory) of one lobe following a period of emotional stress, after the removal of half the gland seven years previously (this change is seen habitually in "stage resection" of the thyroid gland when the patient does not return to have the second lobe removed till after the lapse of several months); (ii) the necessity for examination of the whole gland, as it is highly probable that the adenomatous condition of the left lobe was present at the time of the first operation.

Case IV.

Mrs. E.S., aged sixty-five years, was admitted to the Prince Henry Hospital on July 21, 1939. She stated that as a young girl she had had a fullness in the neck. This had subsided completely and she remained well till 1924, when, after the death of her husband, she became very "nervy" and upset. When seen in 1933, she complained chiefly of tremor, palpitation, breathlessness even at rest, and profuse perspiration. She maintained that the "sides of her neck went down, leaving a lump in the middle". On examination three adenomata were palpated in an enlarged gland—one in the right lobe, one in the left lobe and one at the junction of the isthmus and right lobe. Her basal metabolic rate at that time was +32%.

First Operation.

Two large adenomatous masses were removed on August 4, 1933, one from the isthmus and one from the right lobe. At operation the lobe was not mobilized, but the capsule was opened and the adenomata were separated from the gland tissue with the handle of the scalpel. Examination of a microscopic section revealed in one adenoma mainly large alveoli with but little hyperplasia and considerable interlobular fibrosis. The cells of the other adenoma were slightly hyperplastic and its colloid was pale and vacuolated.

The patient remained well till June, 1939, in spite of the fact that the swelling in her neck had begun to increase in size several months after the first operation. On her admission to the Prince Henry Hospital on July 21, 1939, she had a large swelling low in the front of her neck, principally on the left side. Her pulse rate at rest was 80 per minute and her basal metabolic rate was +28%. Her systolic blood pressure was 208 and her diastolic blood pressure was 112 millimetres of mercury. The electrocardiographic tracing was normal.

Second Operation.

At operation on August 8, 1939, a huge adenoma was found on the left side of the neck and a small portion of fibrotic thyroid tissue on the right side. Total thyroidectomy was performed; some 208 grammes of thyroid tissue, which consisted mainly of the adenomatous left lobe, were removed. The patient suffered no post-operative reaction and was discharged from hospital, cured, on August 31, 1939. Examination of a section showed that the tumour consisted of numerous adenomatous masses, varying from 0.5 to 2.0 centimetres in diameter, and almost all containing an excess of colloid. In several areas calcareous degeneration had taken place, and in other parts cystic changes were present. Little, if any, normal thyroid tissue was to be seen. Numerous thick interlacing bundles of fibrous tissue were present, some of which showed calcareous degeneration, and in some of these degenerated alveoli were present. In other sections large vesicles full of colloid were to be found, and in other areas there were vesicles lined by hyperplastic epithelium together with solid masses of epithelial cells.

Comment.

The points to be noted are as follows:

1. The adenomata were shelled out "by the handle of the scalpel".
2. The factor of emotional stress produced a recurrence of symptoms in a gland previously subjected to operation.
3. The recurrence in this case was on the side (left) from which a small adenoma had not been removed at the first operation.
4. Total thyroidectomy was the procedure carried out at the second operation.

Discussion.

In the assessment of the importance of the several factors involved in the recurrence of adenomatosis or thyrotoxicosis following partial thyroidectomy, insufficient removal of gland easily takes pride of place. When adenomatous conditions are being dealt with it should be regarded as axiomatic that the whole thyroid gland should be examined with care and possible abnormal extensions should be visualized.

When the records are analysed it is found that surgeons who perform too timorous a thyroidectomy have a consistently high recurrence rate. The reason for an unnecessarily conservative operation is usually the fear either of injury to the recurrent laryngeal nerves or parathyroid glands, or of inducing surgical myxoedema. In point of fact, if a true fascial operation is performed, such as is taught in our clinic, these bogies do not arise, since if the dissection is carried out wholly within the fascial capsule of the thyroid these structures lie outside the field of possible injury and any resultant myxoedema is easily controlled. The safety and success of a more radical subtotal thyroidectomy are stressed. A large number of total ablations have now been performed in this unit, and the only results of injury to these structures that have arisen are one case of temporary unilateral cord paralysis and one case of latent tetany. Briefly, the indications for the total operation in cases of adenomatosis as laid down in our surgical unit are as follows; but it must be remembered that generalizations in this sphere do not hold rigidly, and we must particularize with each case. The total operation should be performed: (i) in female patients after the menopause, particularly if any thyrotoxicosis is present, and in men over forty-five years of age; (ii) in cases in which auricular fibrillation has supervened; (iii) when no normal thyroid tissue is obvious in

the gland, the whole being replaced by adenomata, some of which may be retrosternal; (iv) in cases of recurrence in which the gland shows considerable powers of regeneration or a tendency to local malignancy, and in which antecedent operations have failed to remove the actively proliferating tissue.

The operation of "shelling out" adenomata from a capsule of compressed thyroid tissue does not appeal to us as a sound procedure, especially if any thyrotoxicity is present. Adenomata in various other parts of the body, if so treated, take on a distinctly neoplastic tendency, and there is reason to believe that at least in the so-called "foetal adenomata" of the thyroid gland the major portion of the lobe in which they occur should be removed. Even if compressed thyroid tissue capsule does not possess inherent proliferative powers, it is certain that an adenoma rarely occurs singly, for in almost all glands in which one large adenoma is found, numerous other small, often microscopic, adenomatous areas may become obvious on careful examination.

In Cases I, III and IV the initial operation was such a "shelling out", and this experience can be multiplied many times if the records of recurrences are studied.

Hyperplastic toxic thyroid tissue, in which too large a remnant of the gland is left, is apt to undergo compensatory hypertrophy or to become adenomatous and lead to the recurrence of major symptoms. Such a remnant is usually left as a fragment of the posterior aspect of one or both lobes; but in our standardized operation we leave it on the left side only. It is quite unjustifiable to perform a "melon slice" without thorough mobilization of the whole lobe in order to determine how large a remnant is actually being left, or, as we teach, how small a portion may be left. If this is not done a large retrolaryngeal projection or pyramidal lobe may be left behind, or a bulky inferior pole containing an adenoma may give rise to mischief later (*vide* Case II). It is surprising how easy it is in some cases to overlook a retrosternal adenoma unless the whole lobe is lifted up.

Rarely, however, recurrence of symptoms takes place when only the merest knob of a remnant is left. In the pluriglandular type of patient the thyrotropic hormone of the anterior lobe of the pituitary or the secretion of other ductless glands may be involved. In other cases emotional stresses and strains undoubtedly play their part (Cases III and IV). Age does not seem to be a material factor. As the true aetiology of thyrotoxicosis is still obscure, it is possible that both the goitre and toxic symptoms are manifestations of some common factor "X", and while we may remove the goitre, "X", being still operative, causes a continuance or a recrudescence of the thyrotoxic symptoms. Be that as it may, persistent or recurrent thyrotoxicosis is extraordinarily rare following an adequate subtotal thyroidectomy.

A follow-up clinic for all patients with goitre on the lines of that instituted at the Royal Prince Alfred Hospital some years ago, is operative in the surgical unit at the Prince Henry Hospital, and the results are most gratifying.

In the Lahey Clinic,⁽¹⁾ during the ten-year period from 1923 to 1937, 306 patients were operated on for "recurrent hyperthyroidism"; many of these cases must have been associated with adenomatosis of the remaining thyroid tissue. Perkin followed up 750 patients with exophthalmic goitre from the Lahey Clinic and found a recurrence rate of 5.2% two years after operation. Joyce gives a recurrence rate of 5.7% in his cases of "hyperplastic goitre".

These figures indicate that even in the hands of the best surgeons, whose mortality rate from thyroidectomy is less than 1%, recurrence is a definite factor to be reckoned with.

Inadequate iodine in the dietary after thyroidectomy has not been found to be a factor in recurrence at the Lahey Clinic and elsewhere. In our clinic the administration of iodine is discontinued usually within a week of operation and certainly before the patient leaves the hospital. Recently, Cattell and Perkins showed in a series of 256 cases that the majority of recurrences were in patients showing a normal or low iodine level of the blood before operation. They concluded that a more radical

thyroidectomy should be performed on a patient showing a normal or low preoperative iodine value of the blood. These findings have not yet been confirmed.

Emotional stress and strain are potent factors in causing a recurrence of toxic symptoms, and all patients are given a sheet of instructions before being discharged from hospital, enjoining rest and the avoidance of all stimulants, sources of worry, excitement *et cetera*.

In conclusion, we should like to point out that there is a definite histopathological picture which is associated with recurrence. Apart from frankly malignant goitres, there are certain types of gland which are on the borderline between over-growth and newgrowth, and the hyperplastic appearance of these glands as determined microscopically is only now being linked up with their clinical tendency to recur (*vide* Case I). Akin to this type are the Hürthle-cell tumours, which have a distinct tendency to recur locally, as well as certain types of low-grade carcinoma, some cases of which have been followed for several years. We agree with Crile that glands showing conspicuous papillary ingrowths in a hyperplastic epithelial arrangement are notoriously prone to recur. The pathologist is often in a quandary as to the essential nature of many of the glands submitted, the intense hyperplasia present simulating newgrowth.

Prophylactic deep irradiation may find a sphere of usefulness in forestalling recurrence in such cases, for there is no doubt that it does control and cure most cases of recurrent simple hyperplasia in the portion of gland left at operation when this takes on fresh activity.

For the correct interpretation of many of the puzzling features found in the examination of these glands good team work is essential. It means correlation of the clinical features with a thorough histological examination of the gland removed, and the operation of an efficient follow-up system. Only in this way can we hope to formulate further guides as to the types of glands which might be expected to regenerate from ever so small a remnant and lead to recurrence of symptoms.

Acknowledgements.

We wish to express our indebtedness to Dr. E. B. Jones, Acting Director of the Unit of Pathology, the Prince Henry Hospital, for his great help and interest in these cases, and also to Dr. G. Davies, of the Department of Pathology, Royal Prince Alfred Hospital, for slides of sections from his department.

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¹ R. B. Cattell and E. S. Morgan: "Recurrent Hyperthyroidism: Report of 306 Cases Operated upon from 1928 to 1937", *Surgery, Gynecology and Obstetrics*, Volume LXVIII, February, 1939, page 347.

AN UNUSUAL CASE OF CARCINOMA OF THE TONGUE.

By W. E. FLEMING, D.D.Sc. (Melbourne), L.D.S. (Victoria).

(From the Department of Pathology, Alfred Hospital, Melbourne.)

ADVANCED carcinoma of the tongue typically presents the following pathological characteristics: (i) it is of the squamous-celled or acanthomatous type; (ii) it is accompanied by cervical metastases; (iii) it does not usually form widespread visceral metastases; but, when these are present, invasion of the main veins in the neck is usually found.

The present case conformed to only the first of these characteristics.

Clinical History.

The patient was a male, aged forty-five years, a clerk by occupation. Before being admitted to hospital he had been seen by a private practitioner who found an ulcer on the dorsum of the tongue. His previous history was as follows. He had had influenza twenty years earlier and dropsy ten years earlier; he said that he had then "swelled from ear to ankle". He had contracted gonorrhoea twenty years earlier, and had had a sore on the penis at the same time. A Wassermann test taken prior to his admission to hospital gave a strongly positive result. While it was at first thought that the lesion was a gumma, the fact that there was no response to anti-syphilitic treatment aroused the suspicion of malignant disease, and the patient was sent to hospital.

When admitted on May 25, 1939, he stated that he had been perfectly well until seven weeks earlier, when he had noticed soreness of the tongue on eating. This soreness had increased in the next few days, and then, after about two weeks, something suddenly burst in his mouth, and he spat out foul-smelling and foul-tasting blood and pus. From that time till his admission to hospital, he had bursts of blood and pus in the mouth several times each day. He had taken only fluids because of the soreness of the tongue, and complained of difficulty in swallowing. For two hours before admission to hospital he had been continuously spitting blood.

On examination, the tongue was seen to be swollen and along the median line of the dorsum there was a large fissure from which blood was oozing. The edges of the fissure were hard and slightly everted. There were two ulcers on the fauces and the soft palate. The whole tongue felt firm; it could not be moved forward or backward, and was painful to pull forward. There was some puffiness about both angles of the mandible, and some enlarged fleshy glands were palpable in this region.

The fissure was packed with gauze soaked in adrenaline solution to control the bleeding. During the next few days three smears were taken on different occasions and tested for evidence of Vincent's angina and actinomycosis. Fusiform bacilli and spirilla were found, also numerous Gram-positive cocci and Gram-negative bacilli. No mycelium was found. On June 30, 1939, a small piece of the tongue was removed for histological examination, which revealed squamous-celled carcinoma. Deep X ray therapy was applied and the tongue became much smaller in size. The patient's general condition did not improve, however, and the tongue showed a continual tendency to bleed, especially at night. Death occurred on August 3, 1939.

Post Mortem Findings.

Swelling of the submaxillary region was present on both sides, and there was extensive deformity of most of the tongue, which was widely infiltrated by white growth in its anterior two-thirds. There was a longitudinal fissure on the dorsum, near the mid-line, commencing at about the junction of the anterior two-thirds and the posterior third, and running forward almost to the tip. The depth of this fissure varied from 1.0 centimetre to 0.5 centimetre. From the middle of this fissure there was a very deep transverse fissure, extending in the mid-line right through to the inferior surface of the tongue. On the left border of the tongue a tunnel-like cleft from the main fissure opened on the surface of the tongue. The edges of the fissure were somewhat everted. There were outcrop nodules of white growth in the posterior third of the tongue. Figure I shows the growth as seen in mid-line section.

The lungs were oedematous and congested and contained patches of bronchopneumonia. There were a number of scattered metastatic tumours up to two centimetres in diameter, and around some of the bronchi there was an appearance of lines of cancerous permeation. The hilar lymph glands were clear.

A metastasis two centimetres in diameter was present in the anterior wall of the right ventricle, close to the semilunar valves. It involved the whole thickness of

the ventricular wall, and projected into the cavity of the ventricle as a low, lobulated mound of white tissue. No thrombus could be detected, and no other metastases were found in the heart. The aorta was examined carefully for signs of syphilitic changes, but none were present.

The liver contained 10 or 12 scattered metastases, the largest of which was three centimetres in its greatest diameter. The gall-bladder, stomach, intestines, pancreas, bladder, prostate and testes were normal. The spleen contained one metastatic tumour two centimetres in diameter. A small accessory spleen was present, but appeared normal.



FIGURE I.

Vertical median section of the tongue, epiglottis and larynx, showing the extensive cancerous replacement of the tongue with deep fissuring and deformation. (Two-thirds natural size.)

The right adrenal gland was enlarged to about four times its normal bulk by metastatic growth, and was five centimetres in its longest diameter. Its tissue was almost entirely replaced by firm white tumour interspersed with streaks of brownish glandular tissue. The left adrenal gland was not much greater than normal in size, but contained two metastases, the larger being one centimetre in diameter.

The kidneys were thickly studded by numerous metastatic tumours up to 1.5 centimetres in diameter, situated mainly in the cortex. In addition, two tumours, 2.5 centimetres in diameter, of a different nature from the others in the kidneys, projected from the surface. These were yellowish in colour and of soft consistency, and later microscopic examination showed them to be adenomata of the kidney. In Figure II is seen a vertical section of one kidney, and in which both the metastatic growths and one of the adenomata are visible.

The brain was normal except for some yellow surface discoloration on the basal aspect of the temporal lobes due to altered blood. In the *dura mater* there was a slight degree of hæmorrhagic pachymeningitis, due to the presence of diffusely infiltrating tumour extensions between the bone and dura in several places. These arose from metastatic growths in the skull, the largest being three centimetres in diameter and situated in the calvarium, while there were several smaller tumours in both calvarium and base. The vertebrae contained many areas of metastatic growth, and one of the lumbar vertebrae was slightly collapsed (Figure III).

Two metastatic growths were found in muscles, one in the right *pectoralis major*, and the other in the *vastus intermedius*. A subcutaneous nodule was present in the abdominal wall near the umbilicus.



FIGURE II.

Vertical section of a kidney, showing multiple white metastatic growths, and a mottled renal adenoma projecting from the surface of the organ. (Half natural size.)

Histological Study.

Examination of the tumours from all situations revealed well-differentiated cornifying squamous-celled carcinoma, and in many places foreign-body giant cells around fragments of degenerating keratin. In the primary growth broad bands of tumour tissue were seen penetrating down between the bundles of muscle. At the base of the growth

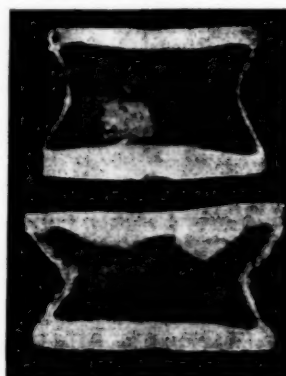


FIGURE III.

Vertical sections of the bodies of two vertebrae, showing metastatic growths with partial collapse of one of the bones. (Two-thirds natural size.)

keratinization was not so much in evidence, and there was more active cell proliferation, indicating spread of the tumour in this direction. Examination of a section from one of the liver metastases revealed a massive keratinous area around which there were abundant giant cells (Figure IV); an area of degeneration occupied the centre of the tumour, and small round cell infiltration was pronounced.

In the metastases in the bones foreign-body giant cells were also numerous and there was widespread necrosis of the tumour. Examination of the heart revealed typical squamous-celled penetration of the muscular tissue, with some keratinization and the presence of a few giant cells, and invasion of the lumen of the right ventricle. In the spleen a pronounced connective tissue stroma separated the strands of the newgrowth. Keratinization was not so pronounced and giant cells were not seen. Examination of the metastases in the kidneys revealed typical squamous-celled growth, with fairly numerous giant cells. The growths were rather distinctly marked off from normal kidney tissue; but residual intact glomeruli persisted in the substance of the tumours (Figure V). As already stated, the two cortical nodules projecting from the surface of the kidney proved to be adenomata. The cells were columnar, with nuclei at the base, and they were arranged in typical glandular formation. An obvious connective tissue stroma occupied the centre of numerous papilliform projections. Figure V shows a section from the cardiac metastasis, in which the invasion of muscle tissue by the newgrowth can be seen.

Commentary.

Ætiology.

In view of the strongly positive Wassermann reaction it seems probable that the carcinoma developed on the site of a syphilitic lesion. Although different investigators have found widely varying percentages in the relationship of the two conditions, there seems to be uniformity of opinion that syphilis is an important predisposing cause of carcinoma. Lund (1933) has found that this association of the two conditions is particularly pronounced in the tongue. The fact that bacteriological investigation early in the treatment disclosed the presence of many fusiform bacilli and spirilla has no great significance. These organisms are commonly found in any type of ulceration in the mouth.

Lymphatic Metastases in Lingual Cancer.

All authorities agree that metastases in the glands of the neck are produced by carcinoma of the tongue in a high proportion of cases—at least 80% according to the figures of Rowntree (1906) and Willis (1930). Blair (1918), referring to mouth cancer in general, states that involvement of the regional lymph nodes occurs sooner or later in every case.

In certain flat ulcers of the lip the glandular involvement may be long delayed; but with carcinoma of the tongue this is not the case.

The usual path of lymphatic spread in these cases is first to the submaxillary or submental glands; to the latter if the primary lesion is near the tip of the tongue, to the former if it is at the edge or dorsum. From here other glands of the neck may be involved and the spread may be unilateral or bilateral. Eventually even the mediastinal and axillary glands may be reached.

In the present case, when the patient was seen in hospital, the glands near the angle of the mandible were palpable but not hard, being in fact described as "fleshy". On *post mortem* examination these glands showed no evidence of carcinoma, nor did any other glands in the neck. The enlarged fleshy glands were probably due to concomitant infection.

Butlin (1905) has pointed out that even though lymph glands are not palpable and show neither macroscopic nor microscopic evidence of metastasis, nevertheless the process may merely be held in check by some unknown factor and may recur at some later period. He quotes a case from his own practice, in which he removed from the mouth some plaques which microscopically revealed an early form of carcinoma. Owing to the unwillingness of the patient, no operation was performed on the lymphatics. Three and a half years later the patient returned with extensive involvement of all the nodes of the neck, but with no recurrence of the intraoral growth. Douglas (1927) reported a case in which cervical metastases developed eight years after excision of a carcinoma of the tongue.

Invasion of Veins.

Several observers have drawn attention to the frequency with which tumours anywhere in the body invade the walls of veins, sometimes penetrating into the lumen and proliferating intravascularly. The details of the process have been investigated by Goldmann, Hedinger, Scheel and Willis (1934). Willis found, in the case of oral and pharyngeal carcinoma, that the presence of visceral metastases was almost always associated with neoplastic invasion of the main veins of the neck. In the present case a careful search of these veins disclosed no such invasion; in fact there was no sign of neoplastic growth in any position in close proximity to the large veins of the neck. The fact that the cervical lymph nodes were not involved explains the non-invasion of the main veins. It was indeed rather surprising that in the presence of such widespread metastases gross venous invasion was not present. A possible clue to the widespread distribution of metastases in this case is the presence of the one secondary growth in the wall of the right ventricle. This projected into the lumen of that chamber, and it is highly probable that tumour emboli detached from here contributed to the metastases in the lungs. The lung metastases, in their turn, gave rise to tumour emboli which were carried by the blood stream into the systemic circulation. The original source of metastasis must be presumed to have been invasion of a branch of the lingual vein in the tongue itself.

Visceral Metastases.

It has been a generally accepted belief that metastases to regions outside the head and neck are rare in epidermoid carcinomata of these regions. This opinion has been expressed by such authorities as Ewing (1928), Kettle (1916) and others. Kettle, in a series of 43 autopsies on subjects of carcinoma of the tongue and mouth, found secondary growths only four times in the lungs, twice in the liver, and once in the stomach and axillary and tracheo-bronchial glands. Blair states that "carcinoma of the tongue is almost essentially a local disease, and except by direct extension will seldom invade tissues below the clavicle". Willis, on the other hand, in a series of 20 cases of epidermoid carcinoma of the head and neck found metastases present in 10. For the whole series the sites of these metastases were: lungs, mediastinal glands, heart, liver, abdominal glands, spleen, kidneys, perirenal tissues and bones. In one case 7 of these sites were invaded, in two cases 4, in two cases 3, in one case 2, and in the remainder only 1 site was invaded. The greatest number of sites in this series in which metastases were found when the primary lesion was in the tongue was 4. Willis (1934) gives also a larger series of 62 cases of epidermoid carcinomata of the head and neck, with generally similar findings to the above. The present case is very unusual, in that nine separate organs or tissues were involved and the metastases were unusually numerous. It may be noted here that clinically no suspicion had been entertained that widespread secondary growths were present.

Summary.

A case of squamous-celled carcinoma of the tongue is described, in which, without involvement of lymph glands, very numerous and widespread metastases in many organs and tissues had developed.

Acknowledgements.

The writer wishes to thank Dr. C. A. M. Renou for permission to report the case and for information regarding the clinical history. He wishes to express his indebtedness to Dr. R. A. Willis, pathologist to the Alfred Hospital, for access to the *post mortem* record, and for valuable advice and criticism in the preparation of this paper.

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TWO CASES ILLUSTRATING THE PRINCIPLES OF MANAGEMENT IN CASES OF OTITIC MENINGITIS.

By DOUGLAS G. CARRUTHERS,
Sydney.

UNTIL about two years ago the patient who contracted meningitis associated with *otitis media* was regarded as doomed. In the past two or three years several advances in treatment have been made, with the result that the literature now includes reports of quite a large number of recoveries. There are two principal reasons for this more hopeful outlook. First, there is the recognition of the occurrence of more deeply seated foci of suppuration than that in the commonly observed mastoid cells, and the realization that all such foci feeding infection into the meninges must be drained before any success can be expected in the treatment of the meningeal infection itself. Secondly, the application of the sulphanilamides, especially in the form of "M & B 693", has given us a weapon with which to attack the infection once drainage has been established. Other factors are the use of repeated small blood transfusions as recommended by Kopetsky, and also the use of vaccines, which appear considerably to enhance the action of "M & B 693".

With regard to the discovery and drainage of more deeply seated foci of suppuration in the temporal bone, the early recognition of labyrinthine invasion and of petrositis and the development of a technique of surgical access to the petrous portion of the temporal bone, which has arisen out of the work of Kopetsky and Armour, Ramadier and finally Lempert, have made possible the eradication of foci beyond those commonly sought in the mastoid.

Case I.

V.D., a female, aged forty-eight years, was admitted to hospital on November 22, 1938. Her history was that, after a very dusty job of house cleaning, a sore throat and severe pain in the head had developed. The head pains had developed quite suddenly and were associated with nausea and vomiting. On the next day she had suffered from right earache, and on the day after that the ear had commenced to discharge. The head pains persisted, however, and there was intermittent vomiting, independent of the taking of food. The patient had been ill for three days when she reached hospital. She lay in bed in a position of general flexion and with the head held sharply turned to the right. She appeared to suffer considerable pain when an attempt was made to turn the head towards the middle line, and one could note considerable spasm of the muscles of the left side of the neck, especially the sterno-mastoid. There was also some rigidity of the muscles of the back of the neck and Kernig's sign was present. The patient was in a semi-stuporose condition, but could cooperate occasionally. No other abnormality was detected on examination of the nervous system. From the right ear there was a scanty purulent discharge, escaping through a small perforation.

The tympanic membrane exhibited only a moderate degree of congestion. There was only slight tenderness of the mastoid process. The hearing power in the right ear was only moderately reduced. There was no nystagmus, and caloric stimulation revealed a live labyrinth. The left ear appeared to be quite normal. In the throat only slight congestion was present, and there was no evidence of recent inflammation. The patient was immediately given routine treatment for suppurative *otitis media* and "Proseptasine" was administered in doses of one gramme three times a day. In addition, an injection of "Solu-septasine" was given. Lumbar punctures revealed only a very slight increase in the pressure of the cerebro-spinal fluid. The fluid contained 290 cells per cubic millimetre, 54% being neutrophile cells and 45% lymphocytes. No organisms were grown on attempted culture from the cerebro-spinal fluid and the blood. On November 23, 1938, the cerebro-spinal fluid contained 1,190 cells per cubic millimetre; 78% were neutrophile cells and 22% were lymphocytes. No organisms were grown on attempted culture. On November 26, 1938, the cerebro-spinal fluid contained 1,360 cells per cubic millimetre, and no organisms were grown on attempted culture. A change was made on this date to "M & B 693", 0.5 gramme being given every four hours.

In view of the increasing number of cells in the cerebro-spinal fluid it was considered necessary to explore the temporal bone, although the *otitis media* appeared to be diminishing and there was no clinical evidence of mastoid involvement. A radical mastoid operation was carried out and the whole of the inner plate of bone covering the lateral sinus, the adjacent portion of the posterior fossa and the tegmen overlying the middle fossa were removed. Scattered small cells containing a thin seropus were found throughout the mastoid, but everywhere the dura appeared to be healthy. The lateral sinus was explored and contained only healthy blood, which later was shown to be sterile after prolonged incubation. In spite of this operation the temperature remained elevated, rising to 103° and 104° F., and falling once or twice in the twenty-four hours to 99° F. and occasionally to normal. The patient's stupor deepened slightly. The turning of the head to the right remained. Kernig's sign continued to be present, but there were no other changes on examination of the nervous system. Examination of the optic fundi revealed no papilloedema. The patient was not sufficiently cooperative for the testing of the visual fields. Further lumbar punctures were carried out. On November 28, 1938, two days after operation, there were 2,340 cells per cubic millimetre, 95% being neutrophile cells and 5% lymphocytes.

In view of this increase further exposure of the dura was carried out, and the brain was explored for a possible abscess, but none was found. Further lumbar puncture on November 30, 1938, revealed a drop in the cell count to 860 per cubic millimetre, 96% being neutrophile cells and 4% lymphocytes. No organisms were grown on attempts at culture. On December 5, 1938, the cerebro-spinal fluid contained 880 cells per cubic millimetre. On December 8, 1938, it contained 209 cells per cubic millimetre; 60% were neutrophile cells and 40% were lymphocytes. The fluid was sterile. At this time the patient's condition appeared to be considerably improved. On December 12, 1938, the cerebro-spinal fluid contained 260 cells per cubic millimetre; but the patient had become very stuporose again. She died the next day.

Post mortem examination revealed no disease of the petrous pyramid nor any uncovered foci in the temporal bone of the right side. The middle ear, mastoid and petrous pyramid of the left side were found to be perfectly healthy. When the brain was sectioned a small abscess was found in the situation of the left caudate nucleus, and from this there was a narrow communication with the left lateral ventricle. It appeared that this abscess, located on the side opposite to the diseased ear, must have been of embolic origin.

Case II.

S.T., a boy, aged nine years, was admitted to hospital on September 19, 1939. The patient had had a discharging ear on the left side, lasting only for three days, a fort-

ILLUSTRATIONS TO THE ARTICLE BY DR. HUGH R. G. POATE AND DR. P. H. MACINDOE.

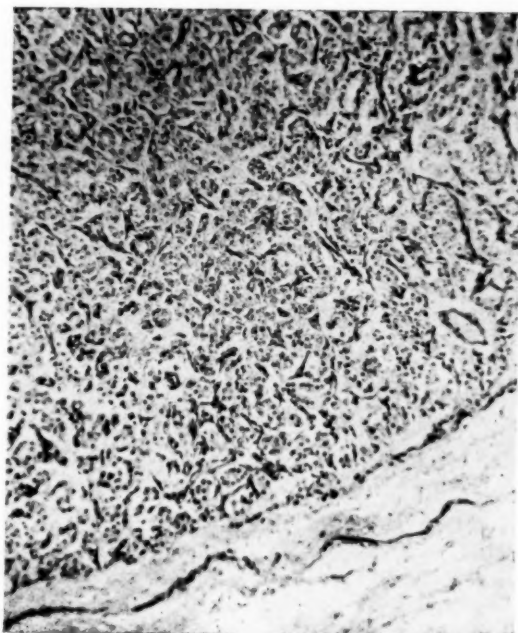


FIGURE IV.
Showing section of thyroid tissue removed in Case I.

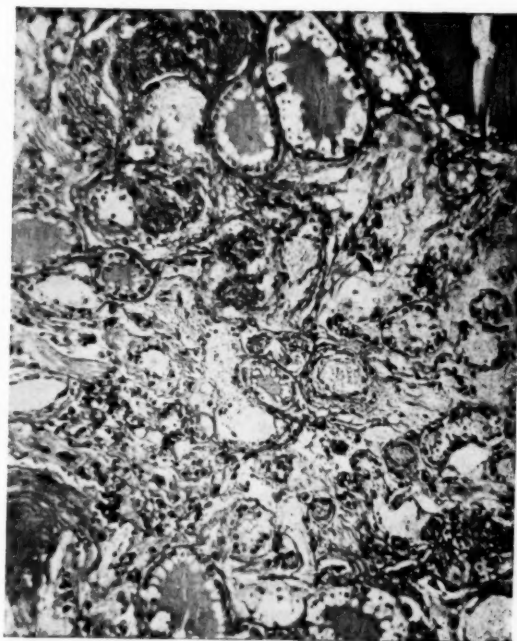


FIGURE V.
Showing section of thyroid tissue removed in Case II.

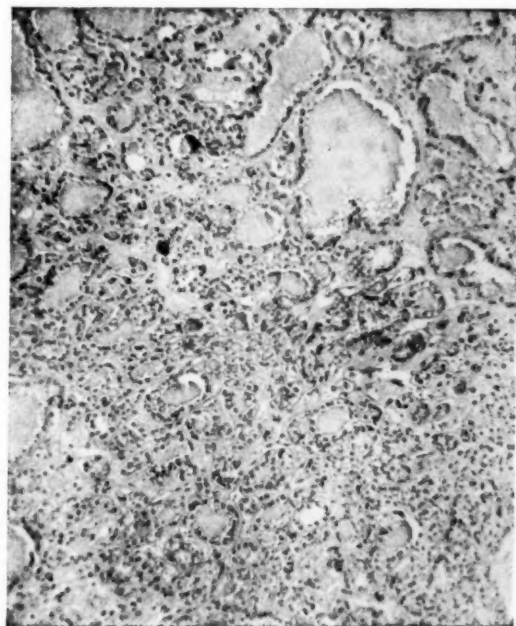


FIGURE VI.
Showing section of thyroid tissue removed in Case III.

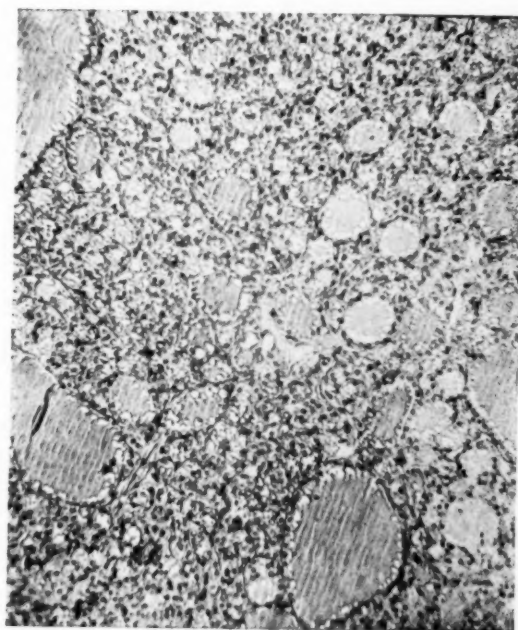


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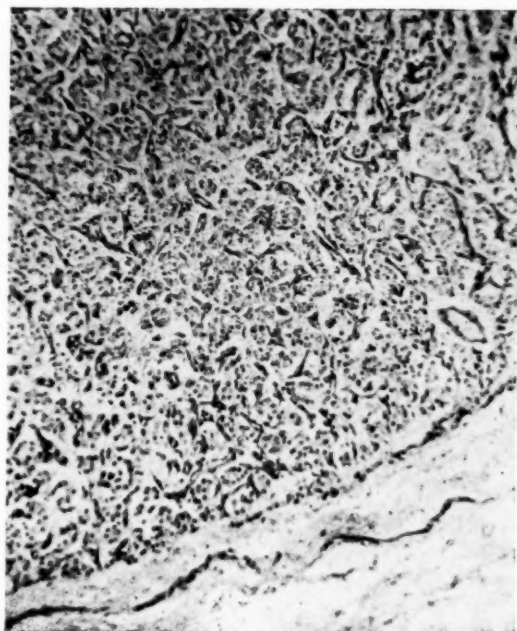


FIGURE IV.
Showing section of thyroid tissue removed in Case I.

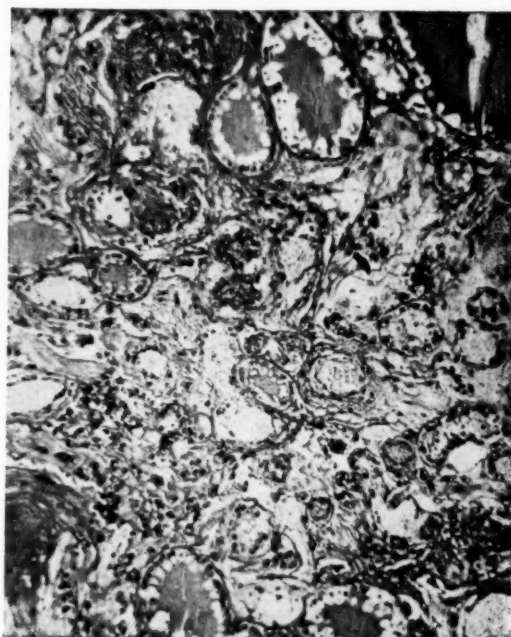


FIGURE V.
Showing section of thyroid tissue removed in Case II.

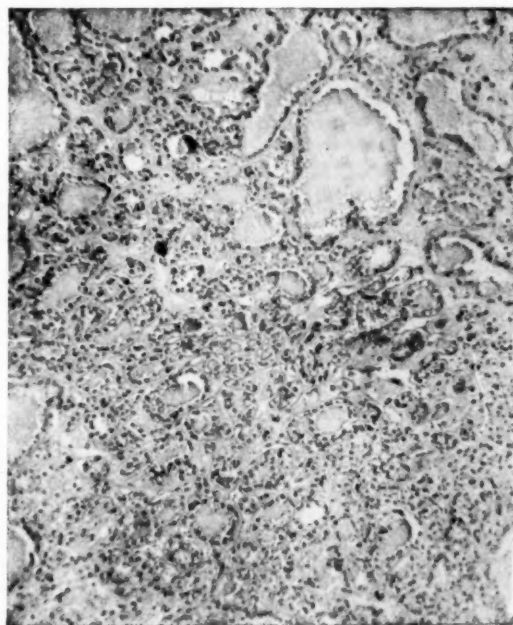


FIGURE VI.
Showing section of thyroid tissue removed in Case III.

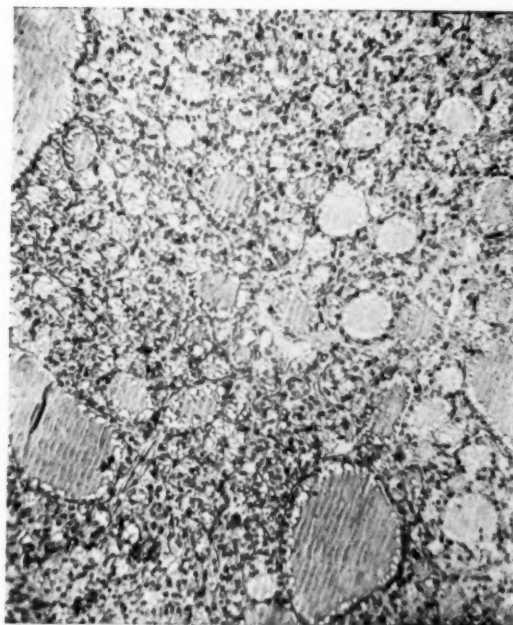


FIGURE VII.
Showing section of thyroid tissue removed in Case IV.

ILLUSTRATIONS TO THE ARTICLE BY DR. W. E. FLEMING.

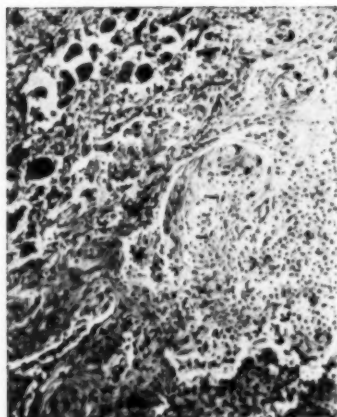


FIGURE IV.
Photomicrograph of part of an hepatic metastasis, showing masses of laminated keratin with associated foreign-body giant cells. (x 45.)

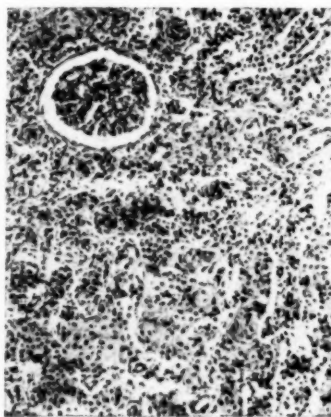


FIGURE V.
Photomicrograph of a renal metastasis, showing an intact glomerulus surrounded by cornifying carcinomatous tissue. (x 45.)

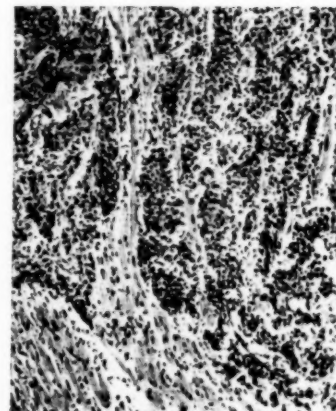


FIGURE VI.
Photomicrograph from the cardiac metastasis, showing cancerous infiltration of the myocardial tissue. (x 45.)

ILLUSTRATIONS TO THE ARTICLE BY DR. DOUGLAS G. CARRUTHERS.



FIGURE I.
X ray photograph showing the base of the skull with the petrous pyramids. The cloudiness and obliteration of cell outlines on the left side are in contrast with the condition on the healthy right side.



FIGURE II.
Showing lipiodol lying in the outer portion of the cavity of evacuation in the left petrous pyramid. The actual exposure of cells went even deeper than the lipiodol penetration.

night previously. The discharge had ceased and there had been no further earache. Four days prior to his admission to hospital he had had severe headache, especially localized about the left orbit and frontal region, and he had been vomiting and had become very ill. The father explained that the boy had had a discharging ear for several days three years earlier, but had apparently quite recovered in the interval. The patient lay in bed in a position of general flexion. He was rather drowsy, but quite cooperative. Kernig's sign was present, and there were considerable neck rigidity and pronounced discomfort on any attempt to move the head. Left-sided facial paralysis and occasional twitchings of the right half of the face and of the right arm muscles were present. A fine nystagmus was noted in the direction of gaze when the eyes were turned to either side. There appeared to be some loss of power to turn the eyes to the left. Apart from some exaggeration of the reflexes no other change was observed on examination of the nervous system. The ear was dry, and on examination the tympanic membrane showed no congestion and at first appeared to be quite healthy. Careful examination, however, revealed a small scale of dry exudate covering a perforation in the *membrana flaccida*. Quite good hearing remained in the left ear. The right ear was healthy. Lumbar puncture was performed immediately and revealed that the cerebro-spinal fluid contained 8,800 cells per cubic millimetre; 86% were neutrophile cells, 6% were lymphocytes, and 8% were other forms. A pneumococcus Type III was demonstrated in the smear and on culture. A blood count revealed 4,670,000 red cells and 16,200 leucocytes per cubic millimetre; of the leucocytes, 89% were neutrophile cells and 11% were lymphocytes. X ray photographs were taken of the mastoid processes and revealed only slight clouding on the left side when compared with the right. A skiagram of the petrous pyramids revealed pronounced clouding with loss of cellular outline on the left side, in great contrast with the appearance of the right petrous pyramid.

A diagnosis of meningitis with established infection of the meningeal space was made. The apparent recovery of the patient's ear infection and the vagueness of the mastoid processes in the X ray films seemed to suggest that infection in these parts might have subsided. The history of orbital pain and the skiagrams of the petrous pyramids indicated petrositis secondary to *otitis media*, while the facial paralysis also indicated a probability of some involvement at least of the petrous base. Although the patient was very ill, and I despaired of his toleration of any anaesthetic at all, particularly a long one, yet it was felt that his only hope lay in the giving of egress to the focus feeding the meninges. With the assistance of Dr. S. V. Marshall, who induced anaesthesia by means of cyclopropane and oxygen, operation was undertaken, the technique of Lempert being followed. Complete unlocking of the petrous pyramid was carried out. This involved a radical mastoidectomy, complete removal of the inner bony table covering the dura of the lateral sinus and of the posterior fossa anterior and posterior to this vessel, complete removal of the tegmen forming the floor of the middle fossa and of a large part of the squamous plate overlying the dura of the lateral wall of the middle fossa. After this many small cells were curetted away from the petrous base, the three semicircular canals being exposed and the posterior wall of the petrous pyramid being removed nearly down to the internal auditory meatus. Through a fresh anterior incision the tympanic plate, forming the anterior wall of the external auditory meatus and the posterior wall of the temporo-mandibular joint, was exposed and was then removed completely, right down to the upper end of the Eustachian tube. The inner wall of the upper end of the Eustachian tube was carefully broken through and the ascending portion and arch of the internal carotid artery were exposed. Now, by removal of the posterior bony wall of the bony carotid canal, access was obtained to the petrous apex. Small cells containing pus were found irregularly scattered throughout the mastoid process, in the base of the petrous pyramid and in the petrous apex. The petrous apex was not obviously cellular, but was more of a diploic type.

Dressings were applied through a large rubber tube, and comprised well-greased gauze wicks previously soaked in acriflavine.

On the day following the operation the number of cells in the cerebro-spinal fluid was 9,920 per cubic millimetre, 97% being neutrophile cells and 3% lymphocytes; but the fluid was sterile and the patient's general condition showed definite improvement. In view of the continuing high cell count, however, it was thought wise to explore the brain for a possible abscess. This examination, however, was without result. On September 22, 1939, the cerebro-spinal fluid contained 2,120 cells per cubic millimetre; 93% were neutrophile cells and 7% lymphocytes. On September 23, 1939, the fluid contained 1,600 cells per cubic millimetre, 85% being neutrophile cells and 15% lymphocytes. On September 24, 1939, the fluid contained 560 cells per cubic millimetre, on September 25, 1939, 320 cells, and on September 28, 1939, 58 cells.

The patient was given "M & B 693" from the day of his admission to hospital. He received one gramme on admission and then 0.5 gramme every four hours. This dosage was continued until October 6, 1939, and was then reduced to 0.5 gramme three times a day; the administration of the drug was discontinued entirely on October 9, 1939. It should be noted that the patient's cerebro-spinal fluid showed no definite improvement until the fourth day, although his general condition was greatly changed from the day after operation.

Blood transfusions were given regularly during the acute stage of his illness. While he was in the operating theatre 450 cubic centimetres were administered, and thereafter he had 100 cubic centimetres daily for the next five days. In addition he was given four doses, at intervals of two days, of autogenous vaccine prepared from the organisms grown from the cerebro-spinal fluid.

This patient has made a complete recovery. With massage treatment his facial paralysis also is passing away.

Discussion.

Let me compare these two cases. In the first it would seem that the patient had an embolic infection which established a focus in the left side of the brain; this was unable to be drained, so that in spite of sulphanilamide therapy she failed to recover. In the second case, thanks to the researches of those who have taught the diagnosis and who have given us a technique of obtaining access for the drainage of deeply seated foci in the temporal bone, we were able to provide an escape for the foci which had been feeding into the meninges. The result has been that the application of sulphanilamide therapy, together with blood transfusions *et cetera*, has brought about a cure of the infection which had established itself in the meninges, and the patient is now alive and well. The lesson probably applies in septicæmia and in all cases in which infection appears to be overwhelming some vital part. If the feeding foci can be reached and drained, then cure may be expected in quite a large proportion of cases with sulphanilamide treatment and blood fortification.

KÖBNER'S PHENOMENON IN PSORIASIS.

By J. M. O'DONNELL, M.B., Ch.M.,
Perth.

Clinical Record.

R.H.A., a male patient, aged twenty-six years, was referred to me for examination on account of a rash on his arm and body, which had developed under adhesive plaster used in the treatment of a fractured clavicle. There was no history of previous skin trouble. The rash was not very irritable, but it had spread to the rest of the body, legs and arms, during the previous few weeks.

On examination the patient's body presented an unusual appearance. There was a circular band of typical psoriasis

extending round the body from the back to about two-thirds of the way across the front of the chest. Starting from the middle of the psoriatic band at the back and extending up over the right shoulder, there was a similar band of psoriasis. There was also a circular band of psoriasis round the upper part of the left arm. The three bands were two and a half inches wide and corresponded to the sites of former applications of sticking plaster. Scattered about the body, arms and legs, generally, were typical scaly psoriatic patches. The dorsum of each foot was particularly affected. The patient also showed typical pustular psoriasis of the soles and epidermophytosis between the toes; the palms of the hands were clear. Examination of the scalp disclosed typical psoriasis; no arthritis was noted. The illustration (Figure I) depicts the arrangement of the Köbner phenomenon at the sites of skin irritation by adhesive plaster.

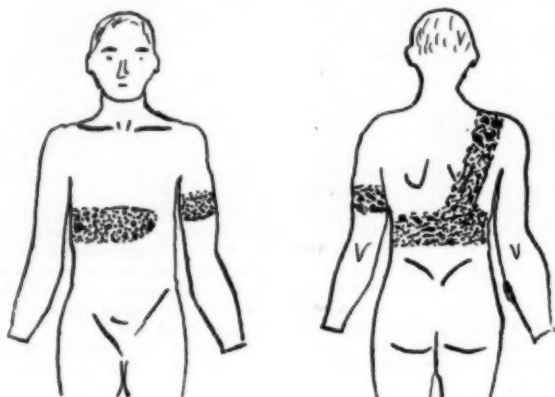


FIGURE I.

Discussion.

Goldsmith, in "Recent Advances in Dermatology", discussing Köbner's reaction in psoriasis, made the following statements:

There has been little progress in the elucidation of its cause. Bizozzero has made some interesting observations on the Koebner phenomenon, i.e., the appearance of characteristic psoriatic lesions, in a subject of the disease, at the sites of injuries. He showed that skin transfixed with the needle gives a positive Koebner only at the point of entry and exit and concludes from this and other tests that the phenomenon depends on damage to the superficial layers of dermis. He further showed that a local "immunity to the sign" (refractoriness) existed in a certain period within circinate lesions and also around a plaque that has ceased to spread. He points out the close resemblance of this localised immunity to the resistance to superinfection in similar lesions of trichophytic and syphilitic origin and argues (inconclusively) in favour of its parasitic nature. For the local refractoriness may not be specific. Lewis showed that vessels are refractory to histamine for varying periods after its injection, after exposure to U.V.R. and after many other types of injury, and Paterson has found that in psoriasis-plaques the vessels are refractory to histamine during the eruptive and chronic stages and that the return of the reaction is associated with clinical improvement.

Summary.

A case of psoriasis associated with a well-marked Köbner phenomenon is reported; the patient, prior to a skin irritation caused by sticking plaster, had shown no sign of psoriasis. It would appear to support the view that the Köbner reaction depends on damage to the superficial layers of the skin in a psoriatic patient. In this case the skin in the affected areas had not even been punctured.

Reviews.

THE SYNAPSE.

"SYMPOSIUM ON THE SYNAPSE" is reprinted from a special number of *The Journal of Neurophysiology*. It consists of a series of five lectures on the mechanism of synaptic transmission delivered at Toronto in 1939.¹ At a synapse one nerve cell enters into functional relationship with another and all transmission from one nerve cell to another occurs across a synapse. Synaptic transmission is thus the key problem of the central nervous system. The symposium is appropriately dedicated to Sir Charles Sherrington, "who introduced the concept of the Synapse, as well as the word itself, into the literature of Neurophysiology".

The five contributors to this symposium, Dr. H. S. Gasser, Dr. J. Erlanger, Dr. D. W. Bronk, Dr. R. Lorente de Nó and Dr. A. Forbes, are leaders in their respective fields of neurophysiology, and each approaches the problem of synaptic transmission from his own individual standpoint.

Dr. Gasser is interested in the study of peripheral nerve fibres, particularly the events occurring after the passage of a nerve impulse. He points out many striking parallels between these events and the events at the synapse, the implication being that the special properties of the synapse are but developments of properties demonstrable in nerve fibres.

Dr. Erlanger is particularly interested in the events occurring when electrical stimuli set up impulses in peripheral nerve fibres. He demonstrates a parallel between synaptic transmission and transmission of impulses across partial blocks in nerve fibres; on this basis he seeks to support the electrical theory of synaptic transmission, but in doing so neglects important structural difficulties.

For some years Dr. Bronk has been engaged in a systematic study of synaptic transmission in the stellate ganglion. He reviews this work and brings it into relationship with other work on synaptic transmission in sympathetic ganglia. He expresses the view that synaptic transmission is due to the combined action of several factors (chemical, electrical, ionic *et cetera*) on the ganglion cells.

For many years Dr. Lorente de Nó has been investigating synaptic transmission in the motor nuclei of the oculomotor nerves. He gives a review of this important work, and discusses it in relation to his anatomical investigations, both of the fibre connexions and the synaptic contacts on the motor neurones. He then considers the electrical potentials observed during synaptic transmission in relation to those in cocaine-blocked nerves. From all this evidence he supports the electrical theory of synaptic transmission; but we have not been able to agree with all his arguments on this theme, particularly that on page 434.

Dr. Forbes concludes the symposium by a general account of the controversy on the nature of the neuromuscular transmitter.

As a review of the subject of synaptic transmission this symposium suffers from the fact that the contributors have diverse individual viewpoints, and but little attempt is made at correlation. The reader must attempt his own correlation, and we feel that this is only possible if the reader is already well informed on the subject. The book is certainly not to be recommended to those wishing to approach the subject for the first time. On the other hand it is a mine of detailed information on most of the experimental work that has been carried out in recent years. A more extensive index would have enhanced its value in this respect.

¹ "Symposium on The Synapse", by H. S. Gasser, J. Erlanger, D. W. Bronk, R. L. de Nó and A. Forbes, reprinted from *The Journal of Neurophysiology*; 1939. Springfield: C. C. Thomas. Imperial 8vo, pp. 111, with illustrations.

The Medical Journal of Australia

SATURDAY, FEBRUARY 10, 1940.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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PROGRESS AND THE PUBLIC HEALTH.

THE annual report of the Chief Medical Officer of the Ministry of Health of Great Britain is always an interesting document, and the report for 1938, recently issued, is no exception. When the report was being written war had not been declared, but from some of the footnotes it is clear that hostilities had commenced before it was out of the hands of the printer. Sir Arthur MacNalty, the Chief Medical Officer, writes an important introduction to his report, "Progress and the Public Health". He points out that philosophers are at variance as to whether progress is a law of nature and an inevitable process. Turgot and Herbert Spencer held that it was, and Carlyle and John Grote believed that it was not. John Grote held that "the logical effect of regarding progress as inevitable would induce a blind and sterile confidence that the universe might be safely left to look after its own evolution". Turning to the biologists, Sir Arthur MacNalty points out that the views on civilization and progress do not at first sight seem reassuring.

Huxley has expressed the opinion that the course of nature is in opposition to everything that can be called progress from the point of view of our moral ideals; and Oswald Spengler, who described civilization as a sickness or senility, thought that the modern spirit of progress was like Faust, "consuming himself with feverish unrest and longing, selling for enjoyment his soul to the devil". Sir Arthur MacNalty agrees with L. P. Jacks that the two positions, the one affirming progress as a law of nature and the other denying it, are not so opposed as their outward contradiction suggests. "Both doctrines are prompted by the desire for progress and rest upon the belief in its possibility." Progress will take place if mankind falls in with the law of evolution and models its actions upon it. Activity, enterprise and philanthropy are thus stimulated. "The effect of Turgot and Spencer's optimism and Huxley and Spengler's pessimism are equally calculated to encourage human progress." But Sir Arthur MacNalty utters a word of warning: progress is a two-edged weapon. He asks whether advancement in one direction does not entail retardation in another; and he holds that this is so especially in the relationship of general progress and modern civilization to the national health.

It is not necessary to follow Sir Arthur MacNalty in all his philosophical and historical reflections, though those who have access to the report will do so with great profit. Reference may be made to three of the important points that he makes. The first has to do with the age of speed in which we live. "The central nervous system of man is dragged at the chariot wheels of modern progress. . . . This concentration of labours which would have sufficed for a week of a past age into the short space of 24 hours, of necessity causes increased strain on the nervous system." The penalty is paid in nervous breakdown, in neurasthenia and in other manifestations of nervous fatigue. There is thus an obvious need for State medicine to pay increased attention to the prevention and treatment of nervous fatigue. Again, mankind is kept in a constant state of nervous tension by the perversion of modern scientific discoveries to destructive aims. The third

matter (and Sir Arthur MacNalty asks particularly whether it can be looked on as a sign of progress) is the provision that has had to be made for air raid casualties and for the evacuation of school children and others from urban centres and their reception in other areas. In these and other matters it would be quite easy to adopt a counsel of despair, and there are perhaps those who would not blame us if we did. But as a preventive against this personal disaster let us follow Sir Arthur MacNalty again when he points out that through all the national health services, "as in a tapestry depicting various scenes, runs the golden thread of a common purpose. To maintain health, to combat disease or disorder in the human body, to enlarge the content of life, to increase its capacity and make it longer, happier and more constructive for mankind are the outlines of this purpose."

A final question remains. Activity, enterprise and philanthropy have been mentioned. We should each ask ourselves why we are practitioners of preventive medicine, why we show activity and enterprise in its pursuit. Have we true philanthropy, love of mankind, or do we look for personal advancement or perhaps merely for our own ease and comfort? By spurning a counsel of despair, by the conscious direction of our energies to improving the lot of our fellow men, we shall make the best use of our scientific progress, we shall practise preventive medicine and show true philanthropy. Incidentally we shall ourselves be much happier.

Current Comment.

THE BARBITURATE PROBLEM.

SLEEPING draughts have been brewed since the dawn of history, but danger and uncertainty have gone with them. Modern science has evolved, in the barbiturates, a series of almost perfect hypnotics. There is still some danger, however, in the very ease with which natural sleep or natural peace of mind can be induced or preserved by drugs. A. L. Tatum offers a timely survey of the barbiturate problem.¹ Reviewing the animal experiments which

have been performed with these drugs, he describes what is accurately known of their site and mode of action. The brain is the chief site of action, since hypnosis and amnesia are the commonly anticipated effects, but we have very little precise knowledge as to how and where in the brain this action takes place. With Seevers and Grinker, Tatum has studied chronic barbital intoxication in dogs over a period of three years. Pronounced morphological changes were found in the brains of the animals, changes which may well underlie alterations in behaviour. Other workers have recorded similar observations. From animal experiments, it has been deduced that barbiturates, in sufficient dosage, can depress respiration, and also the action of the vagus. The question as to whether these drugs can cause cardiac irregularities is an open one. Alterations in the vasomotor mechanisms and lowering of blood pressure have been attributed to them.

Other workers state that thiobarbiturates are especially prone to produce congestion, stasis and even hæmorrhage in lungs, liver, kidney and the central nervous system. In a practical way these manifestations are rarely encountered, but the observation may have some bearing on the use of barbiturates in obstetrics. For these substances can pass through the placenta, and their action is increased by and in some cases increases the action of morphine and the various anaesthetics with which they may be used. It is quite possible that an occasional still-birth is due to their employment.

Tatum deals in an interesting way with the subject of elimination and detoxication. He states that in the usual therapeutic doses barbiturates are for the most part destroyed in the body of mammals, and only barbital and "Luminal" appear consistently in the urine. These drugs seem to be relatively stable and long acting. Other barbiturates which are more unstable and therefore have a relatively short period of action appear in the urine only when very large doses have been given. Working with Fitch, Tatum claims priority in recognizing that it was practicable to use the duration of action of barbiturates as a basis for classification. Although there are minor differences in different members of this very large series of drugs, they are, on the whole, strikingly alike except for the duration of their effects. Four groups have been proposed, the depressant barbiturates being classified as long, intermediate, short and ultra-short acting drugs. Barbital and phenobarbital are representatives of long actors, "Neonal" and "Dial" are intermediate actors, "Amytal" and "Nembutal" are short actors, and finally, "Evipal" and "Pentothal" are ultra-short acting barbiturates. What could be more convenient? Here is the power to induce or prolong sleep for short or longer periods. Yet there is danger in the fact that under certain conditions, such as inactivity of or injury to the liver, short-acting drugs may behave as long-actors and untoward cumulative effects may occur.

¹ *Physiological Reviews*, October, 1939.

Synergism is important; barbiturates significantly increase the anæsthetic potentiality of nitrous oxide. When phenacetin is given with barbiturates the effects of both are clearly accentuated. Acetylcholine potentiates the action of barbital; alcohol increases the action of pentobarbital. It is, of course, well known that morphine prolongs the depression period of "Amytal" and greatly increases the depressant effect of other barbiturates. An account of antagonism is equally interesting: picrotoxin is the most effective drug in the treatment of the hypnotic depression due to barbiturates. "Coramine", caffeine and "Metrazol" have their advocates. Strychnine is of little use. The converse situation is rather different. Convulsions produced by strychnine, cocaine, "Procaine", "Metrazol", picrotoxin, thujone, insulin in excess and so on are all controllable within certain ranges of dosages by barbiturates. Tatum believes that these hypnotics are almost selectively depressant on centres or pathways involved in the convulsive processes with, at the same time, less direct action on centres controlling respiration and vasomotor activity.

In a section of his review Tatum outlines the clinical indications for the use of the barbiturates. As hypnotics, pre-anæsthetic depressants, anæsthetics and anticonvulsants they are of great though only symptomatic value. Both patient and doctor are lulled, and the cause of the malady may remain unsought. In neuropsychiatry their use is perhaps more justifiable; the temporary removal of worry or of excessive inhibition yields a more plastic patient. Given a capable psychiatrist, this amenable state may be of the greatest value.

SULPHANILAMIDE USED LOCALLY IN THE TREATMENT OF COMPOUND FRACTURES.

SINCE 1867, when Lister published his first paper on the principles of antiseptic surgery, there has been an eager search for an antiseptic that will kill bacteria without harm to living tissue with which they may be in contact. Substances almost beyond number have been tried in the past, and though many approach the ideal in greater or less degree, none has yet been accepted as attaining it. In fact many antiseptics have had a distinctly unfavourable effect on the tissues, so devitalizing them that they die and add to the pabulum available to the invading organism. The disappointment of this failure has led to a revulsion against antiseptics, and it would seem safe to assert that today only a minority of surgeons apply antiseptics directly to living tissue. The need for some agent which will sterilize infected wounds is perhaps most keenly felt in the treatment of compound fractures. For these reasons a method reported by N. K. Jensen, L. W. Johnsrud, and M. C. Nelson¹ is of great

interest, and its success in a small series would seem to warrant an extended trial. Thirty-nine patients with compound fractures were treated along orthodox lines as regards débridement, closure and immobilization, but in each instance from 5 to 15 grammes of sulphanilamide were left in the wound. The fractures of two of the thirty-nine patients were accidentally recompounded on the eighth and twelfth days (one had *delirium tremens*) and became reinfected, but the other thirty-seven healed by first intention and without local or systemic evidence of wound infection. The first patient in whom this method was employed was chosen on account of the apparent certainty of infection, by reason of both the local condition and the lowered general resistance due to the associated injuries. He was a boy of twelve years of age who had fallen seventy feet into a river. He had a compound fracture of both bones of one forearm, grossly contaminated with mud, and was also suffering from a severe head injury, a contused kidney and a simple fracture of the opposite forearm. Owing to the need for anti-shock therapy, his compound fracture was not treated until seven hours after his admission to hospital. The wound was then excised, and five grammes of sulphanilamide were placed in it before closure. The patient was afebrile after three days and the wound healed rapidly. Possibly the best indication of the successful cleansing of this wound is given by the fact that six weeks later a gap at the fracture site was closed by a graft with prompt union. Jensen and his co-workers were induced to adopt this method by a consideration of the greatly enhanced powers *in vitro* of sulphanilamide in concentrations higher than those (ranging around 1 in 10,000) which can safely be reached in the blood by systemic administration. It is well known that the drug can be administered subcutaneously or intraspinally in supersaturated solutions of 1% without causing any local tissue damage. The theoretical solubility of sulphanilamide in serum is about 0.8% or 1 in 125. Sulphanilamide crystals in a wound should dissolve slowly, and Jensen and his associates anticipated that in the hæmatoma, serum and local tissues of the wound a concentration approaching 800 milligrammes per 100 cubic centimetres should be achieved and should be maintained for many hours without local injury. This would represent about eighty times the concentration attained by systemic administration. Actual experiment showed that after implantation in a wound about sixty hours were required for the disappearance of the drug from the blood. Systemic administration of sulphanilamide achieves a concentration in the blood serum of about 10 to 20 milligrammes per 100 cubic centimetres, whereas aspirations of serum from the wounds of a few patients have shown local concentrations ranging from 250 to 666 milligrammes per 100 cubic centimetres. Reports on the use of this method in Australia will be awaited with interest.

¹ *Surgery*, July, 1939.

Abstracts from Current Medical Literature.

GYNÆCOLOGY.

The Treatment of Dysmenorrhœa with Testosterone Propionate.

V. J. SALMON, S. H. GEIST AND R. J. WALKER, of the Gynecological Service and Laboratories of the Mount Sinai Hospital (*American Journal of Obstetrics and Gynecology*, August, 1939), report a study of thirty patients suffering from dysmenorrhœa who were treated with various amounts of testosterone propionate. The work was controlled by endometrial biopsies and vaginal smears, and it was shown that whereas a vaginal smear might show a definite œstrin activity, it would, after appropriate doses of testosterone propionate had been given to the patient, become atrophic in type; the endometrium in these circumstances would change from a secretory type to a thin type lacking secretory activity. If the dose of testosterone propionate was increased beyond 350 milligrammes during one cycle, hirsutism and hoarseness of the voice and suppression of the menses would occur. To produce this effect the dose required was upwards of 500 milligrammes. However, within two months of cessation of treatment these symptoms disappeared. The authors report symptomatic relief in 26 out of the 30 cases. It is suggested that the biological effects of testosterone propionate in women is brought about by inhibition of the gonadotrophic factors of the hypophysis, since if it is given late in the cycle, ovulation is suppressed and œstrogen and progesterone formation does not take place. The authors have shown what effect may be expected from various doses, and they maintain that if they are kept below 300 milligrammes no harm will result.

In the discussion that followed the reading of this paper Howard C. Taylor said that he wondered whether with this substance in doses sufficient to produce an atrophic endometrium and vaginal mucosa a too vigorous assault was not being made on the fundamental physiology of the reproductive tract.

The Anæmias of Pregnancy.

J. S. LABATE (*American Journal of Obstetrics and Gynecology*, July, 1939) reports the study of 881 pregnant women. Of these, 48% were found to have anemia, but if those taking iron were excluded the incidence rose to 72%. The Sahli method was employed to investigate the hemoglobin content. Three hundred and twenty-five patients who received five grains of ferrous sulphate during the prenatal period were found to have an average red cell count of 4.09 million and 80.05% hemoglobin, whereas 300 patients who received no iron had an average red cell count

of 3.01 million and 56.25% hemoglobin. Macrocytosis was found to be present in 62% of the cases. The diet of the patients under review was investigated and it was noticed that an adequate diet in itself was not sufficient to prevent anemia. It was found that one gramme of ferrous sulphate per day was sufficient to keep patients from developing anemia. It was also found that there was a lower morbidity amongst those patients receiving iron compared with those who were receiving no iron prenatally.

œstrogenic and Gonadotrophic Hormones in the Serum of Pregnant Women.

A. E. RAKOFF (*American Journal of Obstetrics and Gynecology*, September, 1939) reports investigations carried out at the Jefferson Medical College Hospital on the concentrations of œstrogenic and gonadotrophic hormones in the serum of pregnant women. Discrepancies in biological titrations obtained in different laboratories are often so great, owing to a number of variable factors in test animals, technique *et cetera*, that comparative results are unreliable. The present work tends to confirm the findings of earlier investigators, that there is a deviation from the normal of œstrogen and prolactin values in the presence of toxæmia; usually there is a rise in the prolactin and a drop in the œstrogen values. The present consensus of opinion is that the hormones are formed in the placenta; and Nagayama, in a recent report, demonstrated the production of gonadotrophic hormones *in vitro* in placental tissue cultures. In the course of the author's investigation it was noted that whenever fetal death was suspected, especially in patients with threatened abortion, the quantitative serum prolactin furnished a reliable indication as to the prognosis for the fetus. A continued fall below the normal range meant death of the fetus, despite the fact that the result of the Friedman test might remain positive for some time. The result of the Friedman test usually becomes negative when the serum prolactin has fallen to 50 mouse units or lower. The association of an endocrine dyscrasia with the toxæmia of pregnancy suggests that the former may be of ætiological significance. But it is to be noted that the high concentration of prolactin *per se* can hardly be cited as the cause for the manifestation of toxæmia, since even higher concentration normally occurs in the early weeks of gestation.

Treatment of Pelvic Suppuration.

E. VON MIHALKOVICS (*Monatsschrift für Geburtshilfe und Gynäkologie*, June-July, 1939) presents a statistical survey of the results following needling of the posterior fornix in cases of pelvic suppuration from any cause. He prefers this method to posterior colpotomy in the majority of cases, and states that it has a definite effect on the temperature

curve and on the general improvement of the patient. In addition, it is of great value in the diagnosis of obscure lesions. Needling of the fornix should be performed in hospital and the needle inserted after the insertion of a vaginal speculum. The procedure may be repeated if necessary, and the author has performed it up to six times in one instance. No ill effects were noted.

Vaginal Fluid.

N. LISSIMORE AND D. W. CURRIE (*The Journal of Obstetrics and Gynecology of the British Empire*, August, 1939) have made a pathological study of vaginal fluid. They state that perhaps the cause for the increased interest in the parasitology of the vagina lies in the rediscovery of the *Trichomonas* after almost a century of neglect. The authors have been of the opinion that the presence or absence of *Trichomonas vaginalis* is related to the physical and chemical nature of the vaginal fluid. Green-Armytage has referred to two types of leucorrhœa, the non-infected or normally acid type, and the infective, less acid or even alkaline type. The present investigation was carried out to correlate the vaginal fluid with *Trichomonas* or other parasitic infections. The authors advance a theory that the glycogen is a product of the endometrial glandular cells during their secretory phase, passing to the vagina to be absorbed by the covering cells. This would offer an explanation for the increase of intracellular glycogen absorbed in the secretory phase. They found that the presence of glycogen was associated with a normal pH reading (4.9) and the positive finding of Döderlein's bacillus in 60%; usually pus and pyogenic bacteria were absent. On the other hand, the absence of glycogen was associated with a high pH reading (6.45 average), absence of the bacillus of Döderlein, the presence of pus and the presence of pyogenic bacteria.

Recurrent Abortion and Treatment with Progesterone.

T. N. MACGREGOR AND C. P. STEWART (*The Journal of Obstetrics and Gynecology of the British Empire*, October, 1939) have treated with progesterone 20 patients who had two or more previous successive abortions. In none of the patients could any cause be found for the recurrent abortion, other, that is, than the hormone deficiency revealed in many instances during the investigation. Study of the gonadotrophic hormone excretion of the women who aborted while under treatment in this series showed that there was a low excretion of gonadotrophic hormone at the time (between the fiftieth and sixtieth days of gestation) when the excretion should be high. The progesterone therapy did not appreciably affect this excretion. The authors found that in normal pregnancy the excretion of pregnandiol, an end product of progesterone metabolism, was rela-

tively high between the sixtieth and eightieth days of gestation and again between the two-hundred-and-fortieth day and parturition. In this series of cases of recurrent abortion under treatment with progesterone the essential for success seemed to be the maintenance during the period from the sixtieth to the two-hundredth day of gestation of a pregnandiol excretion about the normal level. The authors claim that the 64% of successes among the women receiving progesterone is greater than the percentage to be expected without treatment. They formulate the hypothesis that the high production of gonadotropic hormone at about the fiftieth to the sixtieth day of pregnancy causes intensive stimulation of the corpus luteum and therefore a high production of progesterone. This brings about effective placental growth. Given the stimulus, the placenta is able by the eightieth or ninetieth day to form a sufficient supply of progesterone to maintain the pregnancy and the corpus luteum can decrease in activity without danger of abortion.

OBSTETRICS.

Induction of Abortion.

W. NEUWEILER (*Monatsschrift für Geburtshilfe und Gynäkologie*, June-July, 1939) has conducted an elaborate survey of the unwanted pregnancies in his practice. In a series of 264 cases, 19.5% were terminated for various medical indications, 56% proceeded to term, while 24.5% of patients induced abortion on themselves. In an attempt to classify the cases the author has divided them into groups according to the number of pregnancies, whether urban or rural, whether the patients were married or single, and the degree of mental development. The percentage of pregnancies not carried to term is higher in towns than in the country, while women of low mentality tend to carry on to term more frequently than those of higher grades of intelligence. The author stresses the importance of the doctor in persuading patients to continue with their pregnancies.

Hyperemesis Gravidarum.

E. BANDSTRUP, of Copenhagen (*The Journal of Obstetrics and Gynecology of the British Empire*, August, 1939), reports the use of fresh suprarenal cortex in the treatment of hyperemesis gravidarum. A freshly prepared solution which was kept in ice was used. It was also tested biologically in animals whose suprarenal glands had been removed. The results were much the same as with all other treatments—some patients improved and some failed to respond. In one instance labour had to be induced; in another instance the patient's condition relapsed on cessation of the injection, and although injections of saline solution were substituted, no improvement was made till suprarenal cortex was again given.

Six patients had oestrogen and gonadotropic hormone assays without any definite results. The history of one case associated with a hydatid mole, which ended fatally within fourteen days from the onset of symptoms, as a contrast to six weeks in the other fatal cases, stands out as pointing to a chorionic origin. Another patient, who persisted with vomiting in spite of a curettement, ultimately died; autopsy revealed the retention of a placental fragment. In regard to the indications for interruption of pregnancy, although a persistent high pulse rate is of definite significance, the authors state that their observations emphasize the great importance of the particular indication which Francis J. Browne expresses as "no improvement in a severe case after a week or less under adequate treatment".

H. L. SHEEHAN (*ibidem*) reports from the Research Department, Glasgow Royal Maternity and Women's Hospital, his investigation of the pathology of hyperemesis and vomiting of late pregnancy. The outstanding finding which was made from cases that had come to the post mortem room during the last ten years was the reduction in the weight of the heart. The weight ranged from 170 to 270 grammes, with a mean weight of 220 grammes; this was much smaller than would have been expected from the amount of fat in the body, and it was almost as pronounced in the well-nourished as in the emaciated patients. In four cases there were small subendocardial haemorrhages on the left interventricular septum. Three of these patients died of post-operative collapse. In the vomiting of late pregnancy the heart never showed the atrophy which is seen in hyperemesis. The atrophy was found to be proportionate to the duration of the vomiting, and not to the degree of emaciation. Atrophy of the heart is probably related to the severe tachycardia and the great tendency of these patients to collapse and die during operative interference. The author was unable to find any histological proof of the occurrence of toxic myocarditis.

Hormone Factors in the Toxæmias of Pregnancy.

H. C. TAYLOR AND E. N. SCADRON (*American Journal of Obstetrics and Gynecology*, June, 1939) make special reference to quantitative abnormalities of prolactin and oestrogen in the blood and urine of pregnant patients. The placenta has for many years been blamed for eclampsia and related diseases, and the recent work of Smith and Smith would seem to lend strength to the theory of the unbalanced production of prolactin and oestrogen by the placenta. In the present article the authors state that they set out to find what the amount and relations to one another were of the various endocrines circulating in normal and toxæmic patients. They found that the figures for the blood and urine showed large normal varia-

tions when different individuals were compared and even when different specimens from the same individuals were contrasted. There was a general lowering of oestrogen values, but an elevation of prolactin values in only a few cases; this latter phenomenon, they point out, is rather opposed to that of Smith and Smith, who found a contrast rise of prolactin and decrease of oestrogen even weeks before toxæmia developed. It is difficult to contrast the work of one author with that of another, as the standards used in biological assay are different in different laboratories; and the authors make a plea for the adoption of a general standard. In discussing their findings they suggest that the simple view is that the abnormalities are merely the result of the disordered physiology of the toxæmic patient. The excretion of the oestrogens, for example, is dependent upon a great variety of conditions. There is, first, the rate of production in the placenta. The second is the degree of destruction and conversion into an inactive form which may occur in the liver or kidney. There is finally the threshold of kidney excretion.

Erythroblastosis Fœtalis.

M. L. MACKLIN (*American Journal of Obstetrics and Gynecology*, July, 1939) reports two apparently full-term children suffering from erythroblastosis fœtalis, the cause of death being found to be erythroblastosis only as a result of an autopsy. The author suggests that this condition may be a cause of many stillbirths at or near term, and of many deaths attributed to prematurity; in these circumstances the obstetrician may receive the blame for mismanagement of the case because of the death of the infant. The present theories are examined and found wanting. A review of the reported cases shows that there is no uniformity as to the position in the series of individual pregnancies at which a baby with erythroblastosis may be born; some women have a normal child, then an affected baby; others have a series of affected babies, then a normal one, followed perhaps by another affected baby.

Ligation of the Umbilical Cord and the Red Blood Count of the Infant.

H. B. FRISCHKORN AND P. RUCKER (*American Journal of Obstetrics and Gynecology*, October, 1939) publish the result of the plotting of the blood count of 400 infants in relation to the time of tying the umbilical cord. They come to the conclusion that the less blood that is left in the umbilical vessels, the higher will be the red cell count of the infant; and if the umbilical vessels are allowed to cease pulsating and to collapse before they are ligated, very little blood will drain out of them. In those infants whose umbilical vessels are ligated after pulsation has ceased, the average red cell count is greater by 584,481 cells per cubic millimetre than in those whose pulsating cords are ligated.

Special Abstracts.

THE MECHANISM OF DIABETES MELLITUS.

THE Goulstonian Lectures of 1939 concerned themselves with the ever-interesting problems of *diabetes mellitus*.¹ The Goulstonian lecturer presented observations made by himself upon sufferers from *diabetes mellitus*, in support of a new concept of the mechanism underlying the diabetic state. Professor H. P. Himsworth has always shown a keen interest in the disturbed conditions of carbohydrate metabolism, of liver function and of the body chemistry in diabetes. His observations are made more valuable by the fact that they have mostly concerned actual diabetic patients. He has presented refreshing and novel hypotheses, supported by persuasive and stimulating evidence. The author belongs to that rare band of investigators who are capable of divesting themselves entirely from traditional beliefs, and so can face any problem with an unprejudiced mind.

In the first lecture reference is made to the extraordinary constancy of the blood sugar level during diuresis in diabetic patients and in those rendered glycosuric by phloridzin. In spite of losses of sugar of a degree greater than the total amount of sugar in the blood at one moment, the blood sugar is maintained at a high or normal constant until the hepatic glycogen is almost exhausted, when a rapid and progressive fall occurs. The supply of sugar is therefore as rapidly maintained as is the output. Further, under constant conditions, for example, a constant diet, the area of the glucose tolerance curve remains remarkably fixed. It is difficult to believe, with Himsworth, that such constancy is without significance. Normal functioning of the hypophysis has been shown experimentally to be necessary for the replacement of liver glycogen consumed. The author suggests that blood sugar is maintained at a constant level, high or low, according to the optimum needs of the body. He then asks why, in diabetic individuals, this level is high, and how changes in optimal blood sugar levels are brought about. In explanation he postulates a hypothesis. Utilization of sugar by the tissues increases in proportion with the height of the blood sugar level. In diabetes utilization of sugar by the tissues is so defective that it must be supplied at an "increased head of pressure" as it were. This "increased head of pressure" is represented clinically by a constant elevated blood sugar level. It has been fully established that, under constant dietary conditions, the higher the level of blood sugar, the greater the effect of a constant dose of insulin in depressing the sugar level. The same applies to conditions of alimentary glycosuria, as studies of the effect of constant intake of insulin in depressing the sugar tolerance curve have shown.

Other observations come into line and give support to the hypothesis under consideration. Himsworth showed a few years ago that the sole dietary factor governing sugar tolerance is the absolute amount of carbohydrate in the preceding diet. In the same way insulin sensitivity can be varied by alterations in the carbohydrate content of the diet. It is probably an individual's increased sensitivity to his own insulin which betters the carbohydrate tolerance during the taking of a high carbohydrate diet. It would appear, states Professor Himsworth, that the Staub-Traugott phenomenon, that is, the progressively diminishing rise of blood sugar in response to repeated injection of constant amounts of glucose, is not the result of a progressive increase in the secretion of endogenous insulin, but is a progressively increasing sensitivity to the same amount of insulin.

Dietary changes in glucose tolerance can therefore be adequately accounted for by changes in the sensitivity of the subject to his own pancreatic insulin. The purpose existing behind these changes would appear to be that of a compensatory mechanism, ensuring, for example,* that

in spite of reduced sensitivity to insulin, an extra "head" of sugar in the blood ensures that the tissues are not allowed to want for sugar. Conditions, for example, pituitary action, dietary carbohydrate *et cetera*, which diminish sensitivity to insulin also diminish the ability of the peripheral tissues to utilize the sugar of the blood. No significant changes are seen, however, between arteriovenous sugar differences on high and low carbohydrate diets, due to the same compensatory mechanism mentioned above. This evidence points to insulin sensitivity being a phenomenon of the peripheral tissues. During starvation sensitivity to insulin falls and can be restored quickly by repeated doses of carbohydrate.

The second lecture was concerned with the control of the blood sugar level. The factor of absorption was dealt with fully. It seems that it has been proven that absorption of sugar from the upper part of the intestine is an active process, proceeding at a fixed rate irrespective of the total amount to be absorbed, as soon as the nervous control of the pylorus permits the sugar to enter the jejunum. On the other hand, loss of sugar by glycosuria strikingly fails to reduce the blood sugar level. Increased utilization by the tissues, for example, in Graves's disease, equally fails to alter the level. In fact, in Graves's disease, if the blood sugar level is disturbed it is in the direction of hyperglycemia. Soskin's theory is that an excess of blood sugar diffuses into the tissues and is returned more slowly as the blood sugar falls—that is, there is an extrahepatic peripheral source of blood sugar.

At the centre of the mechanism adjusting the head of pressure of blood sugar stands the liver. The liver can synthesize glycogen from proteins, hexoses, glycerol, lactic acid, and can pay out this glucose to maintain a constant blood sugar to the end of life. The rate of glycogenesis and glycogenolysis depends on other factors, for example, the pituitary gland.

Professor Himsworth then proceeds to sift the mounting knowledge of the role played by the pituitary gland in carbohydrate metabolism. When an animal whose hypophysis has been removed is poisoned by phloridzin or has its pancreas removed, signs of protein breakdown and imperfect fat combustion fail to appear. It seems that the hypophysis in some way controls the ability of the liver to manufacture glucose from fat and protein. These points raise the question as to the part played by the hypophysis under normal conditions. Hypophysectomy in a normal animal produces low fasting blood sugar values or even spontaneous hypoglycemia. All these effects can be relieved by the injection of extracts of the anterior pituitary lobe. It has been suggested by Ayre and Marks that anterior pituitary extracts can facilitate the mobilization of liver glycogen. At best it is certain that such extracts accelerate the formation of sugar from non-carbohydrate sources.

The anterior pituitary also influences insulin action. It actually opposes it. This has been proved by Himsworth and Scott to be a peripheral action in the tissues, in which the liver has no concern. Further, Professor Himsworth has investigated the effect of dietary restriction upon insulin sensitivity in rabbits in whom the hypophysis has been destroyed. He and his colleagues found that the usual increase of insulin tolerance by starvation was greatly reduced. They suggest that these changes are explicable, at least in part, by variations in the rate of reaction of a factor from the anterior pituitary gland. It appears that the anterior pituitary extract concerned can minimize combustion of carbohydrate. This may explain the prolonged survival of dogs from whom both pancreas and pituitary have been removed.

The role of the adrenal glands has been the subject of considerable inquiry and conjecture ever since Claude Bernard's famous experiment. In animals whose liver has been removed adrenaline does not raise the blood sugar. Recent observations also suggest that adrenaline increases the peripheral utilization of sugar. Nevertheless the role of the adrenals in carbohydrate metabolism is still controversial. The glands have a relationship to the pituitary. Some observers have noted a similar increase of survival

¹ *The Lancet*, July 1, 8 and 15, 1939.

period in depancreatized animals after removal of the adrenals to that occurring after removal of the pituitary.

With regard to the place of the thyroid gland, Griffiths reports a high-grade insulin insensitivity, which is reduced by thyroidectomy. According to Himsworth, it is not necessary to assume that thyroid extract acts through the liver. Thyroid extract raises the metabolic rate of the tissues and hence their demand for glycogen. This may cause the secretion of more anterior pituitary extract, which would produce at the same time glycogenolysis and increased insulin insensitivity inherent in the tissues, which are influenced in opposite directions by insulin and anterior pituitary secretion. The vital necessity for ensuring a sufficiency of sugar in the blood is, according to Himsworth, more likely to serve the needs of the nervous system than the muscles. The brain utilizes only carbohydrate, to deprivation of which it is as sensitive as to oxygen.

Allen's classical experiments, upon which he based his "under-nutrition" treatment of diabetes, may be reviewed in the light of present knowledge. His dogs were almost totally depancreatized and could then be rendered diabetic by over-feeding. This over-feeding increased the demands of the tissues for carbohydrate, and hence a new high level of blood sugar to satisfy them. The increased anterior pituitary secretion, produced to facilitate the process, ultimately exhausted the islet cells and led to permanent diabetes. This dynamic equilibrium of the blood sugar, as Himsworth terms it, is seen plainly in operation in human diabetes. In approaching diabetic coma, with a rise in blood sugar, ketonæmia and ketonuria become less (Himsworth gives short notes of a case to illustrate the point) because the needs of the tissues for sugar are satisfied and the liver is allowed to cease the production of sugar from non-carbohydrate sources. It may be that a diabetic becomes comatose because he cannot raise his blood sugar to a high enough level to ensure adequate utilization of carbohydrate. It is not uncommon, for instance, to see patients up and well with blood sugar values higher than those found in many comatose patients.

Turning finally to human *diabetes mellitus*, suspicions have arisen that the condition cannot be explained upon the basis of a simple deficiency of insulin, as was previously thought. Rather, the metabolic disturbance we call *diabetes mellitus* can be considered to represent a high grade of insulin resistance. Falta has shown that two clinical types can be distinguished: the insulin-sensitive and the insulin-insensitive. Most patients, however, represent an intermediate position between these two classes. To investigate the class to which any patient belongs, the insulin-glucose test may be performed. Five units of insulin and 30 grammes of glucose per square metre of body surface are administered simultaneously, and estimations of blood sugar are made before and at short intervals during the first hour afterwards. The area enclosed between this curve and the glucose tolerance curve, plotted on the same graph, is a measure of the degree of insulin sensitivity, and the two groups are plainly distinguishable. Clinically, the sensitive diabetics tend to be younger and thin, to have a normal blood pressure and arteries, and to experience a sudden onset. The insensitive diabetics tend to be elderly, obese and to have hypertension and arteriosclerosis, and to have a diabetes of insidious onset. The reaction to treatment also differs in the two groups, and is actually a better criterion of differentiation. Sensitive diabetics respond quickly to insulin but readily pass into a state of ketosis. Insensitive diabetics tolerate large doses of insulin and rarely develop ketosis. Increase of dietary carbohydrate produces no glycosuria in the treated sensitive patient, whereas in the insensitive individual a corresponding increase in insulin is called for. In fact, increase of carbohydrate intake lowers the fasting blood sugar of sensitive diabetics and heightens the sensitivity to insulin. It is not possible, however, by changes in diet to convert one type of response into the other. A knowledge of these types is important therapeutically. Obviously, sensitive diabetics, from what has been said early in these articles, are best treated by a high carbohydrate diet. Insensitive diabetics, though responding satisfactorily to a low carbohydrate diet, are not thereby necessarily taking the

optimum diet for their needs, however. It appears further, from a study of arterio-venous sugar differences during the insulin-glucose test, that the peripheral effect of insulin is reduced in all diabetics, but more so in the insensitive than the sensitive cases. Insulin-sensitive diabetics behave in most respects as would be expected if the disorder were due to a simple deficiency of insulin. Insulin-insensitive diabetics would appear to conform to the theory that their disorder is not so much a lack of insulin as an impairment of its peripheral effect. There is a difference too in the time at which the peak effect of insulin action takes place after injection. In normal and in insulin-sensitive diabetics this occurs in the first hour; in insensitive diabetics, in the second and third hours. Such a finding indicates that insulin is not destroyed, but acts later in some patients. Himsworth would suggest that this may be due to the absence of an activator or the presence of a partial inhibitor. It is clear that the total insulin intake of diabetics of the two classes described will not differ materially. Newburgh has recently shown that insulin removes a proportional amount of hyperglycæmia in sensitive diabetics on a constant diet, but not in insensitive diabetics. In the latter, however, the total amount of blood sugar removed is ultimately the same, showing that the high blood sugar adequately compensates for the diminished storage properties of the tissues. A diminished ability to oxidize carbohydrate is thereby compensated, and the disease runs a mild and chronic course. In the insulin-sensitive class no such compensation exists and the clinical course becomes severe.

While anterior pituitary extract can produce insulin insensitivity, no proof has yet been offered that there is a constant factor circulating in the blood of insensitive diabetics which is mechanically transmissible to other organisms.

With regard to the pathogenesis of diabetes, considerable weight must be accorded the work of Young, who produced permanent diabetes in dogs by the injection of increasing amounts of anterior pituitary extract. The new principle introduced is that a short period of over-function in an endocrine gland may lead to a permanent derangement of function in a secondary gland. Himsworth suggests that when, in rare cases, diabetes has become less severe as the result of pituitary irradiation in Cushing's syndrome, the benefit has occurred because irradiation was given before the diabetes was permanently established. The pituitary plays a secondary role in the maintenance of the actual compensatory high blood sugar, as has been explained; but it may be a primary factor in producing the insensitive diabetic, as Young's analogous experimental results demonstrate. The variations in insulin sensitivity produced by dietary changes are mediated by the hypophysis. There is no evidence as yet that the pituitary is concerned in the continuance of the diabetic state, only in its genesis, and then only in clinical hyperpituitarism. Heredity and obesity cannot be denied their places in pathogenesis. A different pathogenesis may exist for each of the two types. Even normal individuals suffer a loss of insulin sensitivity with age. It is possible that the prolonged ingestion of a carbohydrate-low diet, one of the known factors leading to insulin insensitivity, may ultimately precipitate *diabetes mellitus*, especially if an hereditary predisposition exists.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on October 26, 1939, at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, Dr. G. M. BARROX, the President, in the chair.

Inflammatory Conditions of the Upper Portion of the Respiratory Tract.

DR. R. A. R. GREEN read a paper entitled "Inflammatory Conditions of the Upper Portion of the Respiratory Tract" (see page 179).

DR. GARNET HALLORAN read a paper entitled "Inflammatory Diseases of the Upper Portion of the Respiratory Tract" (see page 182).

DR. LAURENCE HUGHES thanked both speakers for their interesting papers, in which they had succeeded in bringing out in a condensed form the most important points of a vast subject. They were all agreed upon the beneficial results achieved by the treatment of these local conditions when they produced local effects. The systemic side was a difficult one for the paediatrician and the oto-rhino-laryngologist. In this regard there should be closer cooperation between the two consultants. Dr. Hughes questioned whether that cooperation often took place. Children who had had nephritis with apparent nasopharyngeal infection were referred for treatment to the oto-rhino-laryngologist in the knowledge that in the majority of cases the ear, nose and throat surgeons would deal with the local conditions on the recommendation of the paediatrician. The same might be said of children who suffered from rheumatic fever. In other words, the paediatrician often referred patients without bothering to discuss with the ear, nose and throat surgeon the type of treatment that should be adopted; it was a case of reference rather than of consultation. Dr. Hughes said that a few years previously he had been an enthusiast for the treatment of local pharyngeal conditions in all children who had had rheumatic fever; in recent years he had become more conservative. He had seen a number of children who had recurrences of attacks of rheumatism after the local infection had been treated subsequent to their first attacks of rheumatic fever. Another point was that the paediatrician sometimes had unfortunate experiences with patients who had rheumatic fever without any evidence of gross systemic changes and who developed disconcerting cardiac complications following upon operative treatment for the local conditions. Dr. Hughes went on to say that sinusitis had been a long time coming into its own, but it played a very important part in regard to local manifestations. Patients were often seen who had had tonsillectomy performed for local or systemic conditions and the symptoms had recurred; the trouble was then found to be in the sinuses.

DR. E. P. BLASHKI said that he was grateful to the two speakers for the papers they had read. He thought that probably the most important statement Dr. Green had made was that in which he referred to the influence of an adult source of infection in the family of the affected child. Parents constantly asked whether these infections were hereditary. Dr. Blashki thought that while there might be some hereditary predisposition to such infections, it had to be pointed out that a child living with parents who were a source of infection would very likely get the infection and would not get rid of it. Moreover, it was not only the parents who were sources of infection; nursemaids and servants often had "sniffing" noses. Much was said about the narrow nasal passages and the shape of the palate and its influence. Dr. Blashki had never heard any remarks concerning an hereditary tendency to certain palatal shapes. The shape of the facial bones would certainly bear some relation to the child's family origin.

Dr. Blashki then referred to the question of treatment and the possible alternatives to operative treatment mentioned by Dr. Green. He said that for diathermy to be successful proper ventilation of the sinuses was essential. If bad ventilation was present, such treatment was likely to make the condition worse, not better. Speaking of Dr. Halloran's remarks concerning the connexion between nasal infection and bronchiectasis, Dr. Blashki said that bronchiectasis could not be simply a consequence of nasal infection. Dr. Blashki looked upon the skiagram as one of the most valuable sources of information in sinusitis; but the radiographer's report rarely conveyed all the valuable information which could be derived from the skiagram, for example, the anatomical relations and size of the sinuses. Reports frequently contained terms belonging to a false and spurious sort of pathology, with no real meaning. Ear, nose and throat surgeons should be capable of interpreting the skiagrams themselves. The

radiographer often reported that an infection in a sinus was "acute" or "chronic"; it was impossible for the radiographer to see that in the skiagram, which revealed nothing but an opacity. Discussing drugs, Dr. Blashki said that many general practitioners and other medical men prescribed proprietary preparations instead of writing out prescriptions themselves. That meant that the drugs used were about four times as powerful as they should be. He thought that that was one of the reasons why some children were said to object to menthol. The menthol preparations in common use were far too strong, and children did not object to menthol in weaker concentrations. Dr. Blashki remarked that the usual strength of menthol was about 2%, and 0.5% was quite strong enough, even for adults. Dr. Blashki then urged the avoidance of ephedrine and like drugs. Nasal drops were made dangerous through the addition of ephedrine; patients all said that they obtained wonderful relief from the first dose, and so on; but after frequent use nothing on earth would relieve their nasal congestion. Ephedrine had its uses, but when it produced reactionary congestion it was dangerous. Dr. Blashki also considered the long-continued use of "Neo-synephrin" very dangerous. He gave details of a patient who had been given a bottle of that preparation, and not only used but abused it. When Dr. Blashki saw her, her nasal mucosa was in a shocking condition. He had had to tell her that it would take weeks to relieve her.

Dr. Blashki then went on to speak of operations on the nose. He said that too little was heard about the object of the operation. There were two objects, one of which had to be brought to the fore to suit the case under consideration. They were: (i) aeration and ventilation, to allow the nose and sinuses to recover, and (ii) removal of diseased tissue which was so far gone as to be unable to recover even with ventilation. The point was to decide to which class the patient belonged, whether the intranasal operation would suffice or whether operation for removal of diseased mucous membrane should be performed. One thing was important, and that was the time that could be allowed for recovery. It was said that a patient could recover after sixty antral wash-outs. That was no doubt true; but he might recover very much more quickly if the antrum was properly opened up, even after a week or so. That would allow the mucous membrane to recover before it had been permanently damaged. Time was very important. Dr. Blashki agreed entirely with Dr. Hughes's remarks about consultants. He thought that consultants did not do enough in referring the matter back to the practitioner who had sent the patient, before attempting to make arrangements for operation. It was a good plan to refrain from giving the patient or his parents any more information about his condition than could be avoided, and to refer the patient back to the general practitioner, who would make as much communication as he thought fit. The general practitioner knew the patient and the circumstances, and it was easy for the consultant to make suggestions that were really unsuitable or impossible.

DR. THORNTON TAYLOR said that he appreciated the invitation that had been extended to him to attend the meeting and join in the discussion. He had been very interested in Dr. Green's paper, especially the section in which Dr. Green had described developmental conditions associated with inflammatory conditions of the nasopharynx. Dr. Taylor said that he as a dentist had been disappointed not to hear mention of the effect of poor dental health; that to him was more important in regard to restricted dental arch growth than was malrespiration. There were so many associated factors that it was hard to draw an accurate picture of these conditions in a short time. The constricted dental arch and the high arched palate were the typical morphological features associated with the mouth-breathing type. Dental disease was so widespread and in many cases arose so early as to limit dental arch growth, and as a consequence function was lost. Dental caries was only a part of the process, but it should be included in such a picture. Dr. Taylor believed that if orthodonty was instituted early enough much help

could be afforded in increasing of the naso-pharyngeal space. The age factor had a bearing in this respect, in that it had previously been considered that this work could be done satisfactorily only on a very young child. Recent statistical work in America had suggested that the most beneficial results were obtained in the active growth period, from six to twelve years; but orthodontia recognized no age limit, and people aged up to thirty or forty years could be benefited. Concerning orthodontic treatment and its role in making normal breathing easier, Dr. Taylor said that with children aged from seven to nine years, before the deciduous dentition lost its anchorage, it was possible in quite pronounced cases to make it convenient for the child to close its mouth, thereby tending to eliminate the habit factor. This could be done in from four to six months. Dr. Taylor felt that it would be wise for him, as an orthodontist, to point out that the psychological aspect of habit prevention might be more carefully considered by the rhinologist after he had done his work. It was very easy for the rhinologist to clear up this disorder surgically; but Dr. Taylor had encountered cases in which it had taken two or three years to overcome a faulty habit. The children could not master the habit of normal breathing; it had in that case become a psychological problem. Dr. Taylor had been interested in Dr. Halloran's remarks about the possible evolution of an Australian type, and he thought that they might bear comment. The idea of the "hawk-faced" Australian was interesting to him. Dr. Taylor pointed out, however, that that characteristic was attributed by European cartoonists to the Englishman. Not a great deal of statistical work had been done on the matter. Dr. Taylor said that he himself had done some work a few years previously on the type mentioned by Dr. Halloran, and found that 15% of the children examined were of that type. Another thing, and one that was as important, was the lack of dental development. Among the children in the age group investigated, 40% had normal dental arch growth; 60% had dental arch crowding to a greater or lesser degree that would tend to give the narrow-faced type. The question of hereditary influence could not be overlooked; hereditary influence had become important in malocclusion, whereas a decade or so earlier it was scarcely mentioned. With regard to the incidence of the narrow-faced type, Dr. Taylor said that it was interesting to him to find that very little work of a comparative nature had been done, but the statistics that were available were in very close agreement. The findings of one or two workers in America and of those in Germany bore very similar relations as to the type and degree of malocclusion. Dr. Taylor suggested that one reason for the broadness of face of the American was that his standard of dental health was far better than in New Zealand, Australia or many other countries. American dentists visiting Australia had stated that they would never meet in their practices the appalling dental conditions they met with in Australia. American parents in the main did not allow their children's teeth to decay so far as to impair function, constrict dental arches and predispose to trouble in nasal sinuses.

Dr. NORMAN MEACLE said that he was grateful to the two speakers. They had covered a great deal of ground in a few words. He had also been interested in the various comments. It was only necessary to attend a children's hospital out-patient department to realize how common nasal sinusitis was in this country. Its high incidence was now generally recognized. Quite a number of the disappointing results of the removal of tonsils and adenoids were due to the fact that they were removed when other disease conditions were present in the nose, such as nasal sinusitis. Parents often said that the child had had nasal trouble ever since he had his tonsils and adenoids out. Sometimes the trouble was due to a sinus condition, and the results of treatment were really quite good in the subacute cases. In some cases the disorder cleared up after conservative treatment, and in others with minor surgical treatment, such as antral wash-outs. Dr. Meacle said that such procedures on children were easily carried out with local anaesthesia. The children were usually intelligent and cooperated well. Referring to drugs for children, Dr. Meacle said that he found argyrol prepara-

tions very good. He had never seen the unfortunate results from the use of silver preparations that he had read about. He believed that many of these preparations were used in Australia.

Dr. Meacle then spoke of the suggestion that a high percentage of mental patients had infected sinuses. He said that he had examined many mental patients and had found nasal sinusitis by no means common among them; infections of the tonsils were common, however. Dr. Meacle recalled one very interesting case. A patient was severely demented and was found to have a bilateral antral infection with suppuration. Simple drainage was performed and the condition cleared up easily. The patient's mental condition improved and in a few months he was well and returned to work.

Dr. ASHLEIGH DAVY expressed his thanks to the two speakers. He thought that the discussion had tended to centre rather on the surgical aspect of the question and to neglect the prophylactic and medical aspects, as stressed by Dr. Green. Dr. Davy thought that the somewhat complacent attitude, expressed during the discussion, towards the results of surgery of the sinuses was not justified. The results of such surgical measures were by no means invariably good—a fact which the lay public fully realized. He thought that greater efforts should be made to prevent the onset of chronic sinusitis, with its accompanying chronic bronchitis, by prophylaxis, as outlined by Dr. Green, and by treatment in the early stages of infection. This was of special importance in children.

Dr. Davy differed from Dr. Blashki as to the value of ephedrine, an isotonic solution of ephedrine in saline solution or a combination of ephedrine and argyrol often being of great value intranasally. The general and climatic treatment should be under the supervision of a physician, and was just as important as in early pulmonary tuberculosis. In prophylaxis and early conservative treatment of infected sinuses lay the greatest hope for the future.

Dr. A. J. GIBSON said that he had listened with great interest to all that had been said. From what he had heard, he thought it should be appreciated that the sequelae so commonly associated with the abnormal conditions under discussion had far-reaching effects, extending even into adult life. He was sure that one of the factors in the causation of the pathological condition so prevalent in Australia as toxæmia of pregnancy was often disease in the upper portion of the respiratory tract during childhood. These people often said they had suffered from catarrh, and catarrh was frequently associated with chronic nasal disorders. Dr. Gibson had been interested in Dr. Halloran's remarks about streptococcal throats. At the Women's Hospital they had recently had nurses with streptococcal infections who had caused them great worry. They had made it a rule to admit to the hospital no nurse or medical officer or student before a swabbing was made of the throat, so that any streptococcus carrier could be excluded. Many affected nurses had had sore throats, and tonsillectomy in the majority of cases had cleared up the condition. But before such nurses were allowed to have contact with obstetric patients another swabbing of the throat had to be examined before they were allowed to resume work. One nurse had not had this swabbing taken, and she had become affected with another type of streptococcus; she became a menace, because many nurses and several patients were infected before her new type of infection was realized. The subject was fraught with tremendous importance in institutions such as obstetric hospitals.

Dr. Green, in reply to Dr. Halloran, said that he had purposely refrained from going beyond the upper part of the respiratory tract; it was, however, difficult to confine discussion to it. Bronchiectasis, or chronic bronchitis as it was called at the Royal Alexandra Hospital for Children, because it was not always true bronchiectasis as in adults, would clear up if the child was given adequate nasal treatment plus a change to a drier climate. With regard to climate, Dr. Green spoke about Dr. Halloran's statement that he preferred highlands, such as the New England range. Dr. Green thought that it was not necessary to

send children so far into the country, and from the economic point of view it was often simpler to get them into the outer suburbs of the city. He had had encouraging experience with some of the lower hills about Parramatta. It would be advantageous for the Royal Alexandra Hospital for Children to have a convalescent home or annexe in that area. As treatment in these chronic nasal infections, after the removal of infected tonsils and adenoids, a change of climate for two or three months was best; shorter periods, such as a few weeks, were of no use at all. Dr. Halloran had referred to the use of sulphonamide drugs in persistent streptococcal infections of the throat. Dr. Green could not hope for striking results from their use in these conditions. He said that their action was apparently a reduction in production of the toxin from the streptococcus, and the drug had its use in the acute streptococcal illnesses. Its effect in clearing up streptococcal infections was simply that it acted on the toxin production of the organism and allowed the body defences to deal with the bacteria themselves; as a bactericidal agent it probably was not of very great use. Dr. Hughes had referred to the question of systemic disease following nasal or tonsil infection. Dr. Green said that the experience of the New York Rheumatism Clinic bore out that train of events. There a number of rheumatic children had been treated first by the removal of their tonsils and then by being sent to a convalescent depot away from the city; many recurrences appeared later. The question of the lighting up of cardiac infection by tonsillectomy in rheumatic cases was interesting, and particularly so from the point of view that probably what happened was that the child was harbouring a hæmolytic streptococcus in the throat and had developed some degree of immunity. The removal of the inflamed tonsil opened up the throat area in which the streptococcus grew, and carditis might result. Dr. Green then referred to a case that had occurred recently at the Royal Alexandra Hospital for Children. A small child had entered the hospital with a double mastoid infection and an acutely inflamed throat. Swabbings made at operation from the mastoid and from the throat both contained hæmolytic streptococci. When the child was admitted to hospital it had obvious carditis, and there was some doubt as to whether it would stand an operation. It had stood operation very well; the throat condition and the mastoid infection both cleared up. Dr. Green thought that this case showed how tragedies might occur, as the throats operated upon after rheumatism might light up a carditis, because streptococci were present.

Dr. Green then said that he agreed with Dr. Blashki's remarks about diathermy. The first thing to do was to see that the airway was clear; but there remained a number of cases in which chronic sinus infection was still present, even when the airway was clear, and diathermy might offer some relief. Dr. Green went on to refer to Dr. Meacle's remarks concerning the parent who said that the child had never been well since the removal of its tonsils and adenoids. Such children had sinus infections, and the only mistake about the removal of their tonsils and adenoids was that the parents had not been warned that these might not be the sole cause of the trouble. Dr. Green agreed with Dr. Thornton Taylor that the dental disorders and dental caries which occurred in these children badly needed treatment; Dr. Green had not referred to the subject himself on account of lack of time. The dental condition was of very great importance. The habit of mouth breathing was a problem, but it was probably not altogether a habit; it was perhaps bound up with the condition of the nasal mucosa. Dr. Green thought that obstruction to nasal breathing was always due to swelling of the nasal mucosa in a narrow nostril. Mouth breathing might be due in part to habit, but quite frequently its persistence was due to inadequate treatment of the nose. Dr. Gibson's remarks on toxæmia of pregnancy had been very interesting. Dr. Green had felt for a long time that not sufficient attention was paid to such conditions as pyelitis and pyelonephritis in young female children. Very often pyelitis, or as it often was, mild pyelonephritis, was related to upper respiratory infection. Dr. Green said that he always saw that such an infection was dealt with. Women who suffered from toxæmia of pregnancy had

frequently, as children, suffered such renal damage; the kidneys were able to carry on until the strain of pregnancy occurred, when they broke down. In conclusion, Dr. Green said that he had had somewhat of a task in keeping his paper within normal limits and in finding some new way of attacking the subject which might help in clearing up what he considered a criticism of their work among children. He wished to thank the speakers for their remarks.

Dr. Halloran, in reply, said that many of the points touched on went very deeply. He was grateful to Dr. Thornton Taylor for attending the meeting and taking part in the discussion. Dr. Taylor had added much of interest, particularly his remarks concerning the statistical relationship between dental function and malocclusion, for which the orthodontist could do much, even in causing a widening of the nasal fosse. Dr. Halloran agreed with Dr. Blashki that there was something in the hereditary theory of malformation. As a simple illustration Dr. Halloran instanced a similar deflexion of the bony septum in several members of the same family; it was not at all infrequent. It would follow that similar bony malformations could occur in other bones around the nasal fosse. Dr. Halloran said that in his paper he had avoided doing much more than merely touching on bronchiectasis; it was outside the scope of the meeting. He had also avoided joining issue with the different schools of thought on the subject of the different aetiological factors. There was one school of thought which believed that these conditions did not originate in the upper part of the respiratory tract, but that exactly the converse was true. Congenital weakness of the lower bronchi was mentioned by certain authors; constriction occurred from fibrosis following infections of the lower part of the bronchial tree. The result was a chronic infection of the respiratory tract. Such cases did occur, but the way in which early bronchiectasis improved and bronchitis was cured after complete reduction of nasal sinus infection made him think that the nasal sinus infection was the primary lesion and the bronchitis was secondary. Dr. Halloran joined issue with Dr. Ashleigh Davy and Dr. Green concerning their remarks about the results obtained by the radical antral operation. Dr. Halloran held that the essential point was that all pyogenic membrane should be removed. It had been proved that the diseased membrane could be replaced by normal ciliated mucosa. Any discredit associated with antral operations arose for two reasons: (a) because of the restricted type of operation necessarily performed on children, and (b) because adherents of the conservative school of thought performed the same restricted type of operation on adults, without removing the pyogenic mucosa. That school was responsible for the discredit affecting any type of antral operation. Dr. Halloran said that the radical antral operation gave excellent results, and he thought that it should be more practised than it had been in the past. There was nothing more pleasing than to see the change in a young person with incipient bronchiectasis brought about by complete eradication of sinus disease and a change to a dry, high climate. It was gratifying to see the bronchial secretion change in type from pus to mucus and to diminish in quantity. These objects were what the oto-rhino-laryngologists were aiming at; they would have a much better opportunity for achieving them if only they were allowed to have the patients when they were much younger.

Dr. Barron, from the chair, thanked the speakers for their papers and those who had contributed to the discussion.

NOTICE.

The following books have been recently added to the library of the Medical Society of Victoria (British Medical Association, Victorian Branch):

Abt, Isaac A. (editor): "Pediatrics", by various authors, Volumes III to VIII, 1924-1926, and Index.
Air Raid Precautions Handbook, No. 3: "Medical Treatment of Gas Casualties", 1939.

- "American Encyclopedia of Ophthalmology", edited by Casey A. Wood, Volumes I to XI, 1913-1917.
- Anderson, J. Ringland: "Hydrophthalmia or Congenital Glaucoma: Its Causes, Treatment and Outlook", 1939.
- Appleton, Arthur B., Hamilton, Wm. J., and Tchaperoff, Ivan C. C.: "Surface and Radiological Anatomy for Students and General Practitioners", 1938.
- Armstrong, Katharine F.: "Aids to Surgical Nursing", 1938.
- Bailey, H., and Love, R. J. McNeill: "A Short Practice of Surgery", Fourth Edition, 1938.
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- Bannen, J. E.: "The Radiology of Pulmonary Tuberculosis", 1937.
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- Beaumont, G. E., and Dodds, E. C.: "Recent Advances in Medicine", Ninth Edition, 1939.
- Bell, George H.: "Experimental Physiology", 1937.
- Berry, Richard J. A.: "A Cerebral Atlas", 1938.
- Best, C. H., and Taylor, Norman B.: "The Physiological Basis of Medical Practice", 1937.
- Bethea, Oscar W.: "Materia Medica, Drug Administration and Prescription Writing", Fifth Edition, 1938.
- Bland-Sutton, John: "Seven Stages of John Bland-Sutton and an Epilogue", by C. Berkeley, 1937.
- Bourne, A. W., and Williams, L. H.: "Recent Advances in Obstetrics and Gynaecology", Fourth Edition, 1939.
- Brooksbank, Alan: "Air Raid Precautions for Australians: Civilians' Guide", Fourth Edition, 1939.
- Browning, Ethel: "Health in Middle Life", 1938.
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- Bulleid, Arthur: "A Textbook of Bacteriology for Dental Students", Second Edition, 1938.
- Cantonnet, A., and Fillozat, J.: "Strabismus: Its Re-education. The Physiology and Pathology of Binocular Vision", Second Edition, 1938.
- Castle, William B.: "Lectures on the Anæmias and Vitamin Deficiencies", 1938.
- Christie, W. F.: "Ideal Weight: A Practical Handbook for Patients", 1938.
- Clark, K. C.: "Positioning in Radiography", 1938.
- Crawford, A. Muir: "Materia Medica for Nurses", Fourth Edition, 1937.
- Crotti, A.: "Thyroid and Thymus", Third Edition, 1938.
- Dapples, Louis E. C.: "Volume Jubilaire en l'honneur de Monsieur Louis E. C. Dapples", 1937.
- De Schweinitz, Karl: "Growing Up: The Story of How We Become Alive, are Born and Grow Up", Second Edition, 1937.
- Dick, George F., and Dick, Gladys Henry: "Scarlet Fever", 1938.
- East, Terence: "Cardiovascular Disease in General Practice", 1938.
- "Evans' Recent Advances in Physiology" (revised by W. H. Newton), Sixth Edition, 1939.
- Falk, I. S.: "Security against Sickness: A Study of Health Insurance", 1936.
- Feldman, Maurice: "Clinical Roentgenology of the Digestive Tract", 1938.
- Findlay, G. M.: "Recent Advances in Chemotherapy", Second Edition, 1939.
- Fishbein, Morris: "Doctors and Specialists: A Medical Revue with a Prologue and a Good Many Sciences", 1930.
- Flexner, James Thomas: "Doctors on Horseback: Pioneers of American Medicine", 1938.
- Fontana, Velarde Perez (editor): "Archivos internacionales de la hidatidosis", Volume III, 1937, Fasc. I-II, 1938.
- Fullerton, Cyrus: "Happiness and Health in Womanhood", 1937.
- Fulop-Miller, Rene: "Triumph over Pain", 1938.
- Funnell, Edith M.: "Aids to Hygiene for Nurses", 1938.
- Gask, G. E., and Ross, J. P.: "Surgery of the Sympathetic Nervous System", Second Edition, 1937.
- Geckler, Edwin O.: "Fractures and Dislocations for Practitioners", 1937.
- Glaister, John, and Brash, James C.: "Medico-legal Aspects of the Ruxton Case", 1937.
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- Goodall, J. Strickland, and others: "Myocarditis. The St. Cyres Memorial Lectures", 1937.
- Graham, Harvey: "Surgeons All", 1939.
- Grand, D. E.: "Ophthalmic Nursing", 1938.
- Grinker, R. R.: "Neurology", Second Edition, 1937.
- Gunn, Clement Bryce: "Leaves from the Life of a Country Doctor" (edited by Rutherford Crockett), 1935.
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- Hadfield, G., and Garrod, L. P.: "Recent Advances in Pathology", Third Edition, 1938.
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- "Housing England": A guide to housing problems and the building industry presented in a report by the Industries Group of P.E.P. (Political and Economic Planning), 1934.
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- Keen, J. A.: "Short Manual of Regional Anatomy", 1937.
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- Lazarsfeld, Sofie: "Rhythm of Life: A Guide to Sexual Harmony for Women", 1934.
- Lorenz, Adolf: "My Life and Work", 1936.
- Ludovici, Anthony M.: "The Truth about Childbirth: Lay Light on Maternal Morbidity and Mortality", 1937.
- McBride, Earl D.: "Disability Evaluation: Principles of Treatment of Compensable Injuries", Second Edition, 1938.
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- Whitsed, Juliet de Key: "Scientific Catering for Institutions", 1937.
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Special Correspondence.

PARIS LETTER.

By OUR SPECIAL CORRESPONDENT.

THE war, which broke out almost four months ago, and the mobilization of all the active forces of France, caused at first much disturbance in intellectual work, and more especially in medical work. But strong efforts have been made to ensure as active a life as possible behind the lines, so that after a short delay these "Paris letters" will be able to go on again in their usual way. Interesting subjects to nourish them will not be wanting.

In order to understand what is to be done henceforth in regard to the care of the wounded, nothing will be so helpful as a glance at the enormous difficulties encountered by the *Service de santé* in France during the war of 1914 to 1918. This is made possible by a lecture given recently by Sieur, a medical inspector-general. One thus learns that at the beginning the French army had not the necessary vehicles for transporting the wounded. Later, with the coming of trench warfare, the *Corps de santé* was able to improve its organization. At that stage, moreover, the fear of typhoid fever arose. It had not been decided until May, 1914, to make vaccination compulsory, and at the beginning of the war 40% of men had not yet been subjected to that necessary measure; it was therefore carried out hastily, so well that towards the end of 1915 typhoid fever could be considered conquered. Exanthematous typhus fever was equally to be feared, in view of the swarming of fleas in the trenches. This invasion was prevented at first by improvised measures

that made it possible to give shower-baths to the men and "delouse" them.

But it was the evacuation of the wounded above all that was beset with difficulties. At the beginning there were only five permanent trains (a kind of travelling hospital), the others being improvised trains or more rarely ordinary trains. It thus happened that the wounded from Lorraine were evacuated to the Pyrenees, where they did not arrive until they had travelled for three days in a deplorable condition. Besides, at that time we were ill-informed about modern war wounds and their complications. We had studied but little the lessons of the Russo-Japanese war and of the Balkan wars. Two opinions thus confronted each other, according to Sieur, that of the sanitary tacticians, who were in favour of rapid evacuation over a long distance, and that of the professional surgeons, who preferred a regular complete operation. The first type of procedure naturally was victor during the retreat from Belgium. Later we sought to attend as quickly as possible to the gravely wounded and to find means to combat wound infection, which, contrary to expectations, was to be the rule.

The wounded from the Spanish civil war, who have arrived, as is known, in France in great numbers, had been looked after at home, according to methods imposed by lack of personnel and of material, as well as by the deficiency in the preparation of physicians and surgeons. This was well pointed out by M. Lardennois in a lecture which he gave last May at the Faculty of Medicine, in the presence of the Spanish ambassador. The difficulties thus created have been obviated in several ways, and primarily by recourse to plaster bandages to protect war wounds. This method consisted in injecting the wounded first of all with tetanus antiserum or with gas gangrene antiserum, then in proceeding to a superficial cleansing of the damaged tissue, and finally in putting on a dry dressing covered with a circular plaster, which was dated and signed. Thus was realized, in a truly remarkable fashion, the method of infrequent dressing and protection, as Leriche puts it, against "hands animated by untimely zeal". Two surgeons from Toulouse, Dieulafoy and Baudet, subsequently applied this method, which gave them "surprising" results, chiefly in the forearm and the leg, less in the thigh and arm. The unfavourable opinions which have occasionally been expressed concerning this method are, according to Lardennois, due to the fact that the wounded thus treated subsequently underwent traumatism and severe pain, and that in particular they were deprived of all technical supervision.

Much other work has been done on this question. Mention must be made of that of Pouliquen, that of Arnaud and Pervès, who considered the closed plaster as an evacuation bandage and as a provisional measure, and finally that of Jacques Leveuf, who, in 1918, during the Balkan war, had recourse, chiefly in the mountains, to methods of this kind, consisting essentially in immediate surgical treatment of the wound, without antiseptic and without suture, completed by a flat dressing and firm immobilization in a plaster cast. This method, called Spanish, can thus equally justly be called French. It seems then that war surgery, emergency surgery if such there be, has found there a means of improving results, for, as Leveuf has noted, "closed plaster" does not mean the suppression of all supervision.

At the Academy of Surgery much attention has been given at a recent conference to a question which is topical and also full of interest, that of the manner of treating cranio-cerebral wounds caused by projectiles. It was naturally the two grand masters of neuro-surgery in France, Clovis Vincent and Thierry de Martel, who opened the discussion. The former pointed out that it was necessary to operate early and that neuro-surgery demanded very special equipment. He gave numerous technical descriptions, into the details of which it would be unsuitable to enter in this place. Thierry de Martel also pointed out that the equipment was a most important thing, but that besides, highly experienced neuro-surgeons

were indispensable. He added that in France a pleiad of young neuro-surgeons were ready to apply and to demonstrate the appropriate methods.

This technical ideal produced some critics, of whom Rouvillois, a medical inspector-general, constituted himself the echo by pointing out that retired surgeons could not be asked to perform very intricate neuro-surgery, and that besides, in many circumstances, a simple form of surgery proved to be of use. Nevertheless, to Pierre Duval the creation in a quiet place of specialist teams seems necessary. This appears the more true since the future of those who have suffered wounds of the cerebral substance does not deserve, as Maurice Chevassu pointed out, the pessimism of which it is the object.

Thierry de Martel believes these comments to be perfectly justified, but nevertheless insists on the necessity for specialists. Further, Clovis Vincent, who is not satisfied with the methods used during the last war, declares that evacuation is still of value and possible after three days, the stage at which a cerebral operation can bring about a cure without meningitis.

Amongst the interesting communications made to the Academy of Surgery, mention must also be made of that of J. de Fourmestiaux on arterial injections in the treatment of open fractures. Three hundred injections of this type have proved to him that by this means sterilization of the tissues can be realized. A 2% solution of mercurochrome injected into an artery has a longer action than when it is given by vein.

The state of war has called for administrative measures of great importance, chiefly owing to the fact that the frontier population has had to be evacuated into "reception areas".

A first decree of October 4, 1939, dealt with problems arising in this way, and on that account completed first the services of inspection and control of public health, comprising in principle, but not always, one inspector of hygiene per area. The decree completed this organization notably by providing for assistant inspectors for "refill areas". The steps taken consisted on the whole in the creation of a medico-social service placed under the jurisdiction of the departmental inspector of hygiene, but entrusted to a head specialist, a paediatrician or an obstetrician, who naturally calls upon all the necessary specialists, such as the oto-rhino-laryngologists, and whose responsibility it is to organize one or several mobile groups of paediatricians, midwives, nurses specialized in paediatrics, almoners *et cetera*. The task of these groups will be to find out sick persons, to group pregnant women as far as possible in the vicinity of a maternity hospital *et cetera*. This decree provides in addition for the notification of contagious diseases and for the manner in which such patients are to be cared for and isolated when necessary. The question of departmental laboratories (with which all departments are not provided) is also regulated by this decree.

These measures were necessary, for more than one-third of those refugees who were forced to leave the frontier areas were pregnant women, infants, or children of all ages. Couvelaire, professor of clinical obstetrics, and E. Lesné, the well-known paediatrician, have been appointed on this account, by the Academy of Medicine, to inspect the organization of maternal and infantile protection in the reception areas. They have thus learned that splendid results have been obtained by this organization, which is above all preventive.

Before the declaration of war, a certain number of interesting congresses on divers topics took place in France. Amongst them is the twenty-second *Congrès de médecine légale et de médecine sociale de langue française*, held at Paris from June 5 to 7, 1939, which was occupied at first with the topic of spilled blood. A scholarly report by Balthazard, R. Piédelièvre, Desoille and Dérobert told of the information given by the cinematographic study of the formation of stains and of the trajectory of drops, phenomena which are of much importance in legal

medicine. A second report by Jean Fotineau was concerned with the medico-legal aspect of general paralytics who have had remissions. This is a question which is becoming more and more difficult, according as we are able better to care for these patients, and a question which truly bears witness to the progress of medicine in a disorder considered, less than a quarter of a century ago, as absolutely incurable. A third report by Pierre Lyonnet, of Paris, was concerned with the question of hernie and accidents at work.

Thanks to that incomparable centre, the *Hôpital Saint-Louis*, and the countless patients suffering from skin affections who attend there every day, because they know that they have there the greatest chance of being cured, the French school of dermatology and syphilology has been able to impress the whole world. Thus the fiftieth anniversary of the foundation of the *Société française de dermatologie et de syphiligraphie*, celebrated on June 22, 1939, must receive attention. This ceremony, moreover, drew a great number of personalities from all countries. There one heard reports by Tzanck and Lewy and by Rivalier on the role of the sympathetic nervous system in accidents of arsenic therapy. Naturally, this session was completed by a walk round the old Saint Louis Hospital, the only one in Paris which has a truly remarkable architectural style. Its museum of mouldings also constitutes one of the curiosities of scientific Paris, for it is the oldest in existence, and a number of its pieces are unique.

The permanent committee of the *Office international d'hygiène publique* held, from April 24 to May 2, its extraordinary session for 1939. In the course of this session was studied the present-day manner of spread of the chief contagious diseases—plague, cholera, yellow fever, exanthematous typhus fever, smallpox, scarlatina, poliomyelitis *et cetera*. Some reports were devoted to the question of asocial vagrants, of sanitary organization and so on.

Laignel-Lavastine gave a much discussed inaugural address at the Faculty of Medicine, in spite of the times through which we are passing. This pupil of the most expert clinical psychiatrists that France has had (H. Claude, Magnan, Pierre Janet, Gilbert Ballet) has made a name for himself chiefly by his studies of the sympathetic system and by historical researches of great value. The three main principles which guide him, in psychiatry as well as in pathology, and which he expounded with fluent and agreeable eloquence, are: the unity of the clinical method, the importance of the reactive coefficient and the supremacy of objectivity. In his opinion, moreover, the improvement of the human race depends largely on the progress of medicine, particularly mental medicine.

The splendid work of Justin Jolly, who has just been elected a member of the Academy of Science, the highest scientific honour in France, deserves a brief mention. He actually confined himself to laboratory work, and devoted himself especially to histology and embryology. It was he who gave his name to those formations which come from the nuclei of nucleated erythrocytes and which are sometimes found in the blood—formations which are generally given the name "Jolly bodies", and occasionally in the United States of America the name of "Howell-Jolly bodies".

Amongst the chiefs of schools and the famous medical men in France towards the end of the nineteenth century are two urologists, Felix Guyon and Albarran. These two masters made themselves known all over the world. Their pupil and successor, Felix Legueu, who has just died, was worthy of them, and continued their brilliant traditions. Since 1913 until his retirement he had been professor of clinical urology at the *Hôpital Necker*, as well as a member of the Academy of Medicine and the Academy of Surgery.

One of the most famous professors of the Faculty of Strasbourg, Professor Prosper Merklen, well known for his beautiful "Atlas of Hematology", has just died.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera*, have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 167 and 172, of December 14 and 21, 1939.

THE SECOND AUSTRALIAN IMPERIAL FORCE.

To be Colonel and to command 2nd/2nd Australian General Hospital—Lieutenant-Colonel (Temporary Colonel) W. W. S. Johnston, D.S.O., M.C., E.D., Australian Army Medical Corps, 3rd Military District, 13th October, 1939. To be Lieutenant-Colonels—Lieutenant-Colonels F. K. Norris, Australian Army Medical Corps, 3rd Military District, and to command 2nd/1st Casualty Clearing Station; K. B. Fraser, Unattached List, 1st Military District, and to command 2nd/3rd Field Ambulance; H. G. Furnell, Australian Army Medical Corps, 3rd Military District, and to command 2nd/2nd Field Ambulance; J. Steigrad, Australian Army Medical Corps, 2nd Military District, and to command 2nd/1st Australian General Hospital; and H. C. Nott, Reserve of Officers (A.A.M.C.), 4th Military District; Majors L. G. Male, Australian Army Medical Corps, 5th Military District, and to command 2nd/1st Convalescent Depot; and A. J. Cunningham, Australian Army Medical Corps, 2nd Military District, and to command 2nd/1st Field Ambulance, 13th October, 1939. To be Majors—Majors M. L. D. McKeon, Unattached List, 1st Military District; H. McLorinan, Australian Army Medical Corps, 3rd Military District; N. B. White, E.D., Australian Army Medical Corps, 3rd Military District; T. A. Parry, Australian Army Medical Corps, 1st Military District; D. M. Salter, Australian Army Medical Corps, 4th Military District; R. H. Russell, N. H. W. Saxby and N. W. Francis, Australian Army Medical Corps, 2nd Military District; H. Stubbe, Australian Army Medical Corps, 5th Military District; J. B. Colquhoun, Australian Army Medical Corps, 3rd Military District; H. R. Love, Australian Army Medical Corps, 1st Military District; and K. B. Hope, Australian Army Medical Corps, 3rd Military District, 13th October, 1939. To be Captains—Captains H. M. Trethowan, Australian Army Medical Corps, 5th Military District; T. G. Swinburne, Australian Army Medical Corps, 3rd Military District; J. F. Dunkley, Australian Army Medical Corps, 1st Military District; S. W. Williams and W. W. Lempriere, Australian Army Medical Corps, 3rd Military District; G. N. Young, Australian Army Medical Corps, 2nd Military District; L. G. Hill, Australian Army Medical Corps, 1st Military District; T. L. Tyrer, Australian Army Medical Corps, 3rd Military District; C. R. Blomfield, Australian Army Medical Corps, 2nd Military District; C. F. Marks, Australian Army Medical Corps, 1st Military District; R. S. Smibert, Australian Army Medical Corps, 3rd Military District; A. W. Robertson, Australian Army Medical Corps, 1st Military District; E. Bailhache, Australian Army Medical Corps, 3rd Military District; R. F. A. Becke, Australian Army Medical Corps, 2nd Military District; C. H. Johnston, D. L. G. Thomas, H. R. Smith and L. E. Rothstadt, Australian Army Medical Corps, 3rd Military District; R. H. McDonald, Australian Army Medical Corps, 2nd Military District; P. C. Thomas, Australian Army Medical Corps, 5th Military District; A. K. Green, Australian Army Medical Corps, 1st Military District; W. D. Refshauge, Australian Army Medical Corps, 3rd Military District; E. P. Cherry, Australian Army Medical Corps, 4th Military District; P. A. Tomlinson, C. H. Selby and R. B. M. Pilcher, Australian Army Medical Corps, 2nd Military District; M. A. Rees, Australian Army Medical Corps, 3rd Military District; D. W. Brummitt and R. G. Champion de Crespigny, Australian Army Medical Corps, 4th Military District; J. A. F. Flashman, W. W. Gunther and E. J. C. Molesworth, Australian Army Medical Corps, 2nd Military District; S. Crawcour, Australian Army Medical Corps, 3rd Military District; J. B. W. Meredith, Australian Army Medical Corps, 2nd Military District; G. F. Hill and T. Y. Nelson, Reserve of Officers (A.A.M.C.), 2nd Military Dis-

trict; Captain (Honorary Major) L. C. E. Lindon, Reserve of Officers (A.A.M.C.), 4th Military District; Captains H. W. Anderson, Reserve of Officers (A.A.M.C.), 1st Military District; F. R. Hone, Reserve of Officers (A.A.M.C.), 4th Military District; A. L. Johnston, Reserve of Officers (A.A.M.C.), 5th Military District; and I. J. Wood, Reserve of Officers (A.A.M.C.), 3rd Military District. Honorary Captains R. V. Graham, Reserve of Officers (A.A.M.C.), 2nd Military District; M. J. Morris, Reserve of Officers (A.A.M.C.), 5th Military District; G. T. Gibson, Reserve of Officers (A.A.M.C.), 4th Military District; R. R. Anderson, Reserve of Officers (A.A.M.C.), 5th Military District; E. S. J. King and K. C. Ross, Reserve of Officers (A.A.M.C.), 3rd Military District; G. W. Pottinger, Reserve of Officers (A.A.M.C.), 1st Military District; R. W. Johnson, Reserve of Officers (A.A.M.C.), 5th Military District; K. H. Heard, Reserve of Officers (A.A.M.C.), 4th Military District; and N. H. Robinson, Reserve of Officers (A.A.M.C.), 5th Military District, 13th October, 1939.

**PERMANENT NAVAL FORCES OF THE COMMONWEALTH
(SEA-GOING FORCES).**

The following officer of the Emergency List is appointed for temporary service: *Surgeon Lieutenant-Commander*—Geoffrey Charles Palliser Courtney, dated 1st December, 1939.

The appointment of Surgeon Captain William James Carr, C.B.E., is extended for a period of one year from 30th January, 1940.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Nicholas Larkins is appointed Surgeon Lieutenant, dated 9th September, 1939.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps (Citizen Forces).

The appointment of Major E. L. Cooper, Assistant Director-General of Medical Services, as half-time Medical Officer to assist the Director-General of Medical Services, which appeared in Executive Minute No. 271/1939 and was promulgated in *Commonwealth Gazette* No. 63 of 3rd September, 1939, is terminated, 20th October, 1939. *To be Temporary Lieutenant-Colonel*—Major E. L. Cooper, Assistant Director-General of Medical Services, Army Headquarters, 21st October, 1939.

Forces Administered by Army Head-Quarters.

Australian Army Medical Corps.

To be Captain (provisionally)—Alexander Joseph May, 26th September, 1939. (This cancels the notification respecting this officer which appeared in Executive Minute No. 337/1939, promulgated in *Commonwealth Gazette* No. 121 of 2nd November, 1939.)

NORTHERN COMMAND.

First Military District.

Australian Army Medical Corps.

To be Captains (temporarily)—Lieutenants F. R. Vincent and K. P. Barnett, 15th November, 1939.

EASTERN COMMAND.

Second Military District.

Australian Army Medical Corps.

The provisional appointment of Captain D. G. Perrett is confirmed. Captain (provisionally) N. M. Stewart is brought on the authorized establishment, 1st July, 1939.

Australian Army Medical Corps Reserve.

To be Honorary Captain—Bernard Francis Hindmarsh, 7th November, 1939. *To be Honorary Lieutenant*—Harold Paterson Bradford, 7th November, 1939.

SOUTHERN COMMAND.

Third Military District.

Australian Army Medical Corps.

Major J. B. Bell is appointed from the Australian Army Medical Corps Reserve, 13th October, 1939.

Fourth Military District.

Australian Army Medical Corps Reserve.

To be Honorary Captain—Harold Alexander McCoy, 31st October, 1939. *To be Honorary Lieutenants*—Stanley William Fewell and Roy George Weaver-Gibson, 2nd November, 1939, and 15th November, 1939, respectively.

Sixth Military District.

Australian Army Medical Corps.

Major J. S. Reid from the command of the 7th Field Hygiene Section is appointed to command the 12th Field Ambulance and to be Temporary Lieutenant-Colonel, 1st December, 1939, *vice* Lieutenant-Colonel S. G. Gibson, M.C., who relinquishes the appointment on 30th September, 1939.

Australian Army Medical Corps Reserve.

To be Honorary Lieutenant—Albert Norman Poulton, 2nd November, 1939.

WESTERN COMMAND.

Australian Army Medical Corps.

The undermentioned officers are brought on the authorized establishment from the dates stated: Major A. L. Dawkins and Captain W. Muir, and Captains (provisionally) D. B. C. Wilson and A. M. Clark, 14th November, 1939; Captain E. W. Kyle, 30th November, 1939. Lieutenant-Colonel D. S. Mackenzie, D.S.O., is transferred to the Unattached List, 30th November, 1939. Captains (provisionally) A. F. Walsh and J. B. Mathieson are transferred to the Reserve of Officers (A.A.M.C.) and be Honorary Captains, 14th November, 1939.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force.

Medical Branch.

Pilot Officer G. M. Oxer, M.B., B.S., is transferred from the General Duties Branch and from the Reserve to the Active Force and promoted Flight Lieutenant, 16th November, 1939.

The following are granted commissions on probation as Flying Officers with effect from 20th November, 1939: John Lionel Walter and Roland Godfrey Morris.

The notification in the *Commonwealth Gazette* of 2nd November, 1939, concerning John Aloysius O'Brien is cancelled.

Reserve.

Pilot Officer C. R. E. Downing, M.B., Ch.B., F.R.C.S. (Edin.), is transferred from the General Duties Branch to the Medical Branch and promoted Flight Lieutenant, 20th November, 1939.—(Ex. Min. No. 8—Approved 19th December, 1939.)

The following are transferred from the Reserve to the Active List: Squadron Leader W. D. Counsell and Flight Lieutenant R. W. D. Fisher.

Correspondence.

SOME OBSERVATIONS ON SCIATICA.

SIR: Dr. Norman Little's article in the journal of December 16, 1939, and the letters from your well-informed correspondents, Dr. Wedlick (January 6, 1940) and Dr. I. Douglas Miller (January 13, 1940) have provided an informative study.

The title of Dr. Little's article proclaimed its limitations, and readers whose practices are not confined to the orthopedic field, nor to the ancillary fields of physiotherapy or neuro-surgery, will find no fault with the author for his omissions and his under-emphasis. Cases presenting the symptoms of what is known as "sciatica" occur not infrequently, even in small communities; but the response to treatment, in the group referred to by Dr. Little as secondary sciatica, can be remarkably indifferent. Herein lies an explanation of the abiding interest in this problem, especially for those whose lot is cast in remote places,

and who must rely largely for their guidance on the printed word. On behalf of practitioners so placed, may I suggest to the contributors to this trilogy that, if their busy pens would complete the lesson they have begun, a review of their treatment results could speak louder than words.

Yours, etc.,

Lismore,
New South Wales,
January 13, 1940.

J. L. ROBERTS.

SIR: I wish substantially to support Mr. Douglas Miller's observations on sciatica made in this journal on January 13, 1940.

While I do not entirely agree with Mr. Miller's statement that radiculitis from nerve root compression by bulging of the *nucleus pulposus* is one of the commonest causes of intractable sciatica, I do enthusiastically support his suggestion that any patient with chronic sciatica and in whom no cause is obvious should be adequately investigated.

In addition to herniated intervertebral disk there are a number of extraneural causes of sciatica including spinal arachnoiditis, thickened *ligamentum subflavum*, *meningitis circumscripta*, small meningeal tumours, vascular abnormalities and hæmorrhages into the interspinous ligaments produced by lumbar puncture (as described recently in the *Proceedings of the Staff Meetings of the Mayo Clinic*).

Experience has shown that a local extraneural cause for sciatica is not uncommon and the intelligent approach to this malady is obviously to exercise all reasonably safe diagnostic procedures before submitting the patient to arbitrary, painful and often extremely harmful physical therapy.

Yours, etc.,

131, Macquarie Street,
Sydney,
January 23, 1940.

GILBERT PHILLIPS.

REFUGEE DOCTORS.

SIR: Your correspondents should read the White Paper published recently by the British Government relating to the treatment of Jews and non-Jewish political and religious critics in Germany before the outbreak of war. It gives an account in official language of the merciless treatment received by them at the hands of the Government.

Anyone knowing the facts would have been mad to have stayed in Germany. I have not advocated the admission of all and sundry into Australia, but simply that the few who have been admitted should be treated with humane consideration and courtesy. I have myself placed one M.D. (Vienna) as a waiter at a seaside resort, and have helped others to become partially trained nurses *et cetera*.

The publication referred to above is entitled "Treatment of German Nationals in Germany 1938/39", and is commended to all who try to preserve a judicial attitude. (Price 6d.)

Yours, etc.,

103-105, Collins Street,
Melbourne, C.I.,
January 15, 1940.

JAMES W. BARRETT.

WAIST BAND AND BLOOD PRESSURE.

SIR: My attention has been drawn to an article entitled "Current Comment" in your edition of the 13th instant, in which the following passage occurs:

Contributions to medical literature by insurance practitioners are rare in this country and would be welcome; but it is possible that such literary enterprise is or would be unpleasing to the insurance

companies whose records would have to be drawn upon, for premiums are still based upon vital statistics nearly half a century old, and the less light shed upon the changing face of vital statistics, the better for business.

The article being in the lighter vein, perhaps the writer had for the moment discarded scientific accuracy of statement—he had never heard, for example, of the "A 1924-29" mortality tables, constructed jointly by the Institute of Actuaries in London and the Faculty of Actuaries in Scotland on the basis of the office records of 58 companies operating in the United Kingdom, three of them being Australian offices and another an English office with an Australian branch. This fact alone shows that the offices have gone to some expense to make up-to-date information available—they have not adopted the practice of hiding their heads in the sand like the ostrich.

We hope to see a publication of this rejoinder, or some more accurate statement from your contributor.

Yours, etc.,

W. J. COOKSEY,

Honorary Secretary,
The Actuarial Society of Australasia.
Sydney,
January 19, 1940.

Obituary.

JANE STOCKS GREIG.

THE following appreciation of the late Dr. Jane Stocks Greig has been received from Dr. Constance Ellis.

Jane Stocks Greig came to Australia with her family from Scotland in 1889. Soon after she and her sister Janet Lindsay Greig entered the Melbourne University as medical students. She graduated in 1895, being sixth on the honours list. Soon afterwards she was associated with the other medical women in the foundation of the Queen Victoria Hospital, with which she was actively associated until her appointment in 1909 as one of the three school medical officers, an activity then first inaugurated by the Education Department. Prior to this Dr. Greig had studied for the D.P.H. and was the first woman to obtain this diploma in our university.

Dr. Greig remained in the Education Department until her retirement in 1937. Her work through all those years was most successful and her various suggestions and reports were highly esteemed, not only at home but also abroad. At first Dr. Harvey Sutton was senior officer, but during the War Dr. Greig and Dr. Fitzgerald carried on, though with much reduced staff.

Later, Dr. Greig was appointed chief medical officer in the Education Department and was instrumental in gradually obtaining additional members of her staff and especially the appointment of dental inspectors, the importance of this work appealing to her very strongly.

In 1924 Dr. Greig was honoured by the Commonwealth Government in being appointed to the first royal commission on health, of which the late Sir George Syme was chairman. One can imagine the keen interest her alert mind would have brought to all the problems to be considered by the commission. Dr. Greig was especially suited to a seat on this commission because of the great interest she had always taken in the various social and medical developments in this State, such as bush nursing hospitals, baby health centres, Midwives Board, town planning and many others.

In 1929 Dr. Greig went overseas and was especially impressed with work in the United States of America, though she found our activities in her special department compared favourably with other countries, in view of our much smaller expenditure.

Dr. Greig's holidays were usually akin to that of the busman, as she always returned with a great deal of material personally obtained. In addition to the various demands of her department, Dr. Greig lectured at the

university to education students and others on the subject of hygiene, and continued to do so up to the time of her retirement.

That her colleagues and other women appreciated Dr. Greig's character and ability is shown by the fact of her having been chairman of many committees, for example, the Medical Women's Society, who also nominated her as their representative on the council of the Victorian Branch of the British Medical Association; the Victorian Branch of the Women Graduates Association, the Emily McPherson College of Domestic Economy, whilst she was an active member of various other committees rather too many to enumerate.

Dr. Greig's first concern was the work of her department and its further development; her relaxation came mostly from her interest in other organizations. She enjoyed contact with her friends and joined in their various social entertainments. She was a staunch friend so long as you deserved her friendship; she was quite frank and would tell you at once if anything you did or said displeased her; but knowing her character, the criticism would be salvaged by its justice and absence of malice.

Her family, of which she was the natural head, will miss her, as will also her many friends in the community.

HAROLD GRAVES BENNETTS.

We regret to announce the death of Dr. Harold Graves Bennetts, which occurred on January 30, 1940, at Sydney, New South Wales.

The Royal Australasian College of Physicians.

EXAMINATION FOR MEMBERSHIP.

THE next examination for membership of the Royal Australasian College of Physicians will be held in Melbourne in March and April, 1940. By-law number 10 states:

The examination for membership of the College shall consist of:

- (1) A paper on the principles and practice of medicine, including pathology, therapeutics and the history of medicine.
- (2) An oral examination, which may include the clinical examination of patients, together with the identification of naked-eye and microscopic specimens.

The written paper will be taken in capital cities where candidates are offering on Saturday, March 16, and the clinical examination will be conducted in Melbourne on Wednesday and Thursday, April 3 and 4, 1940.

Intending candidates are reminded that application forms may be obtained from the office of the college, 145, Macquarie Street, Sydney, and should be in the hands of the Acting Honorary Secretary at this address not later than February 17.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

THE undermentioned have been registered, pursuant to the provisions of *The Medical Act of 1939*, of Queensland, as duly qualified medical practitioners:

Muggia, Adriano, M.D., 1921 (Genoa), c.o. Dr. Vattuone, 113, Wickham Terrace, Brisbane.

O'Connor, Playford D'Arcy, M.B., B.S., 1938 (Univ. Adelaide), 905, Stanley Street, East Brisbane.

Rappaport, Bernard, M.D., 1930 (Padua), c.o. Hotel Canberra, Ann Street, Brisbane.

Thompson, Alexander McQueen, M.B., B.S., 1937 (Univ. Adelaide), 4, Alpha Street, Kensington Park, South Australia.

Johnston, George Arthur William, M.B., B.S., 1937 (Univ. Sydney), c.o. Dr. A. M. Langan, Cairns.

SOUTH AUSTRALIA.

THE undermentioned has been registered, pursuant to the provisions of the *Medical Practitioners Act, 1919* to 1935, of South Australia, as a duly qualified medical practitioner:

Thiersch, Johannes Bernhard, M.D. (*ad eundem*), 1938 (Univ. Adelaide), Adelaide Hospital, Adelaide.

Books Received.

HEARING AND EQUILIBRIUM, by H. Macnaughton-Jones, M.B., B.Ch., B.A.O., R.U.I.; 1939. London: Baillière, Tindall and Cox. Foolscap 4to, pp. 136, with 48 illustrations. Price: 7s. 6d. net.

THE ESSENTIALS OF MEDICAL TREATMENT, by D. M. Lyon, M.D., D.Sc., F.R.C.P.; 1939. London and Edinburgh: Oliver and Boyd. Demy 8vo, pp. 468. Price: 15s. net.

THE LANGUAGE OF GESTURE, by M. Critchley, M.D., F.R.C.P.; 1939. London: Edward Arnold and Company. Crown 8vo, pp. 128. Price: 5s. net.

THE STUDY OF ANATOMY WRITTEN FOR THE MEDICAL STUDENT, by S. E. Whittall, M.A., M.D., B.Ch., M.R.C.S., L.R.C.P., F.R.S.; Fourth Edition, revised and enlarged; 1939. London: Edward Arnold and Company. Crown 8vo, pp. 130.

TREATMENT BY MANIPULATION, by H. J. Burrows, M.D., F.R.C.S., and W. D. Coltart, M.B., F.R.C.S.; 1939. London: Eyre and Spottiswoode, for "The Practitioner". Demy 8vo, pp. 36, with illustrations. Price: 5s. net.

FRACTURES AND OTHER BONE AND JOINT INJURIES, by R. Watson-Jones, B.Sc., M.Ch.Orth., F.R.C.S.; 1940. Edinburgh: E. and S. Livingstone. Super royal 8vo, pp. 735, with 1040 photographs, X rays and diagrams. Price: 50s. net.

MASSAGE AND REMEDIAL EXERCISES IN MEDICAL AND SURGICAL CONDITIONS, by N. M. Tidy; Fourth Edition; 1939. Bristol: John Wright and Sons Limited. Demy 8vo, pp. 479, with illustrations. Price: 15s. net.

THE INOMETER OR LADDER FOOD CHART, by T. Johnson, D.Sc., F.L.S.; 1939. Edinburgh: E. and S. Livingstone. Demy 8vo, pp. 8. Price: 6d. net.

IRVING'S ANATOMY MNEMONICS, by A. G. Smith, L.R.C.P. and S.; Fourth Edition, revised and enlarged. Edinburgh: E. and S. Livingstone. Demy 32mo, pp. 133. Price: 1s. 6d. net.

WAR WOUNDS AND AIR RAID CASUALTIES. ARTICLES REPUBLISHED FROM THE BRITISH MEDICAL JOURNAL; 1939. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 268. Price: 10s. 6d. net.

THE HOSPITAL CARE OF NEUROSURGICAL PATIENTS, by W. B. Hamby, M.D., F.C.S.A.; 1939. Baltimore: C. C. Thomas. Demy 8vo, pp. 129, with illustrations. Price: \$2.00 net.

ENDOCRINE GYNECOLOGY, by E. C. Hamblen, B.S., M.D., F.A.C.S., with a foreword by J. D. Collip, M.D.; 1939. Baltimore: C. C. Thomas. Royal 8vo, pp. 481, with illustrations. Price: \$5.50 net.

PSYCHO-ANALYSIS, by E. Glover, M.D.; 1939. London: John Bale Medical Publications Limited. Demy 8vo, pp. 139. Price: 12s. 6d. net.

ELECTROCARDIOGRAPHIC PATTERNS: THEIR DIAGNOSTIC AND CLINICAL SIGNIFICANCE, by A. R. Barnes, M.D.; 1939. Baltimore: C. C. Thomas. Royal 8vo, pp. 197, with illustrations. Price: \$5.00 net.

HANDBOOK OF DISEASES OF INFANTS AND CHILDREN FOR STUDENTS AND PRACTITIONERS, by F. M. B. Allen, M.D., F.R.C.P.; Second Edition; 1939. London: Baillière, Tindall and Cox. Demy 8vo, pp. 428, with illustrations. Price: 18s. net.

WHITLAW'S PHARMACY, MATERIA MEDICA AND THERAPEUTICS: Thirteenth Edition, revised by J. H. Burn, M.D., and E. R. Withell, B.Sc., B.Pharm., Ph.C., A.I.C., with a chapter on the use of vitamins in medicine, by H. M. Sinclair, D.M.; 1939. London: Baillière, Tindall and Cox. Crown 8vo, pp. 544. Price: 12s. 6d. net.

SAVILL'S SYSTEM OF CLINICAL MEDICINE, DEALING WITH THE DIAGNOSIS, PROGNOSIS AND TREATMENT OF DISEASE, FOR STUDENTS AND PRACTITIONERS, edited by A. Savill, M.D., and E. C. Warner, M.D., F.R.C.P.; Eleventh Edition; 1939. London: Edward Arnold and Company. Medium 8vo, pp. 1169, with illustrations. Price: 28s. net.

OPERATIVE DENTAL SURGERY, by J. B. Parfitt, L.R.C.P., M.R.C.S., L.D.S., and W. E. Herbert, L.R.C.P., M.R.C.S., L.D.S.; Fourth Edition; 1939. London: Edward Arnold and Company. Demy 8vo, pp. 484, with illustrations. Price: 25s. net.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Boscence, William Edward Bruce, M.B., B.S., 1937 (Univ. Adelaide), Box 18, South Broken Hill.

The undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

Patterson, George William, M.B., Ch.B., 1936 (Univ. Dublin), 50, Paisley Street, Footscray, W.11.

Diary for the Month.

- FEB. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 FEB. 13.—Tasmanian Branch, B.M.A.: Branch.
 FEB. 15.—Western Australian Branch, B.M.A.: Council.
 FEB. 20.—New South Wales Branch, B.M.A.: Ethics Committee.
 FEB. 23.—Tasmanian Branch, B.M.A.: Council.
 FEB. 27.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 FEB. 28.—Victorian Branch, B.M.A.: Council.
 FEB. 29.—South Australian Branch, B.M.A.: Branch.
 FEB. 29.—Federal Council, B.M.A.: Meeting, Melbourne.
 MAR. 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.
 MAR. 6.—Victorian Branch, B.M.A.: Branch.
 MAR. 6.—Western Australian Branch, B.M.A.: Council.
 MAR. 7.—South Australian Branch, B.M.A.: Council.
 MAR. 12.—Tasmanian Branch, B.M.A.: Branch.
 MAR. 12.—New South Wales Branch, B.M.A.: Ethics Committee; Executive and Finance Committee.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xvi-xix.

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TOOWOOMBA HOSPITALS BOARD, TOOWOOMBA, QUEENSLAND: Resident Medical Officer.

THE UNIVERSITY OF SYDNEY, NEW SOUTH WALES: Junior Lecturer in the Department of Pathology.

THE UNIVERSITY OF MELBOURNE, VICTORIA: Part-time Demonstrators in Histology.

THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY, NEW SOUTH WALES: Assistant Honorary Obstetrician and Gynaecologist.

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MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

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